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BULLETIN No. 26.

(B. A. I., 156.—Dairy No. 34.)

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY.
D. E. SALMON, D. V. M., Chief.

NATIONAL AND STATE DAIRY LAWS.

COMPILED AND ABSTRACTED
BY
R. A. PEARSON, M. S.,
ASSISTANT CHIEF OF DAIRY DIVISION.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1900.

LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Animal Industry,
Washington, D. C., November 21, 1900.

Sir: I have the honor to transmit herewith, and recommend for publication as a bulletin of this Bureau, a manuscript entitled "National and State Dairy Laws," prepared by Mr. R. A. Pearson, assistant chief of the Dairy Division. This manuscript contains brief abstracts of all National and State dairy laws now in force and the full texts of those which have been enacted since 1898. The laws then in force were published in the Fourteenth Annual Report of this Bureau. There has been considerable dairy legislation during the past few years, and in this connection numerous requests for information as to the laws of the various States have been received. This bulletin will assist in answering such inquiries, and will be especially useful in States where it is proposed to enact new dairy laws during the coming session of the legislatures.

Respectfully,

D. E. Salmon,
Chief of Bureau.

Hon. James Wilson,
Secretary.

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NATIONAL AND STATE DAIRY LAWS.

INTRODUCTION.

Abstracts and full texts of all national and State laws applying to dairy products and their imitations were published in 1898 in the Fourteenth Annual Report of the Bureau of Animal Industry, and later reprinted in separate form. The call for such information was much larger than had been anticipated and necessitated a second reprint. Since that compilation was made there has been considerable new legislation on the subject, and this has required replying to many inquiries by letters to supplement the printed volume. It now seems advisable to show all the changes that have been made and the new laws that have been enacted.

In the last two years new dairy laws have been passed in twenty States, the most common subject of legislation being renovated butter, the manufacture of which has rapidly increased; it is customary to permit it if plainly labeled. In some States the dairy laws have been repealed and reenacted with slight changes, and it would be well if the same were done in some other States where the laws are unnecessarily numerous and bulky. Only a few laws or parts of laws have been repealed by name. Usually new laws "repeal all acts or parts of acts in conflict," and this often leaves the compiler in doubt as to whether an old law is still operative or not; in some cases it might require a court decision to determine the point. When there is doubt as to whether or not a law is in force, it is printed in full.

It is believed this compilation is complete, though some laws of a general nature referring indirectly to dairy products may have been overlooked and omitted. In each case the names of the acts have been referred to the State officer especially charged with their enforcement or, where there is no such officer, to the secretary of state, with request that any omissions or corrections be noted. It has been chosen to include some laws which refer but remotely to dairying rather than risk omitting any that might be of interest in this connection.

As in the 1898 compilation the table and abstracts are arranged in the following order: State dairy officials, milk, butter, cheese, imitation butter, imitation cheese, miscellaneous, pure food. It is obviously impossible to arrange the full laws in the same way. As the laws which were printed in 1898 are given here by reference only it is an easy matter to find and examine the latest dairy legislation.

It is hoped this revised compilation and the abstracts will be useful where new dairy laws are needed, as well as where those now on the statute books are not as generally known as they should be; also that it will emphasize the need of clearer legislation in some States where it is evident that the dairy interests have not been protected as was apparently intended by those who passed the laws now in force.

PRINCIPAL SUBJECTS ON WHICH DAIRY LAWS HAVE

[illegible] show the pages of this bulletin where brief abstracts of the laws [illegible] the subjects named at the heads of the columns. The plain figures refer to pages in [illegible] D = Defined only. P = Must be colored pink. A plus mark (+) following a page

State, etc.	Page of abstract.	State dairy commissioner or similar officer.	Milk. Standard prescribed.	Milk. Skim milk regulated.	Milk. Condensed milk regulated.	Milk. Impure milk restricted.	Milk. Other milk laws.	Butter. Defined or standard fixed.	Butter. Other butter laws.	Cheese. Defined, standard prescribed or grades established.	Cheese. Registered brands provided.	Cheese. Other cheese laws.
United States	[illegible]						563+	D. 556	563	D. 560		563
Alabama	[illegible]											
Arizona	[illegible]											
Arkansas	[illegible]							D. 564				
California	[illegible]	[illegible]				[illegible]–			564	565	564	
Colorado	[illegible]	[illegible]								569	569	
Connecticut	[illegible]	571–, [illegible]		572		572–			573			
Delaware	[illegible]											
District of Columbia	[illegible]		576	577–		577–	576–, 578					
Florida	[illegible]											
Georgia	[illegible]		581	581		581						
Idaho	[illegible]											
Illinois	[illegible]	[illegible]+	[illegible]	585–	586	585–	584					
Indiana	[illegible]	[illegible]		589		589			589			589
Iowa	[illegible]	590–	592			592	591					592
Kansas	[illegible]			593		593						
Kentucky	[illegible]			594		594						
Louisiana	[illegible]								[illegible]			[illegible]
Maine	[illegible]		596	596		596–		D. 598		D. 598		
Maryland	[illegible]						[illegible]–					
Massachusetts	[illegible]	604–	[illegible]	605–	605	603	[illegible]	D. 606		D. 606		
Michigan	[illegible]	[illegible]+, [illegible]–	615	[illegible]		615+, [illegible]		D. [illegible]	613		612	613
Minnesota	[illegible]	623, [illegible]–	[illegible]	[illegible]		[illegible]–, [illegible]–	623, [illegible]–		[illegible], [illegible]+	[illegible]–	[illegible]	[illegible], [illegible]+
Mississippi	[illegible]											
Missouri	[illegible]									D. 625		624+
Montana	[illegible]											
Nebraska	[illegible]	[illegible]+		[illegible], 631		628	631		628, [illegible]+			628, [illegible]
Nevada	[illegible]			632		632						
New Hampshire	[illegible]		635	634		635	634	D. 635		D. 635		
New Jersey	[illegible]	639, 644+	[illegible]	[illegible], 640		636–, 640		D. 643	642	D. 643		642
New Mexico	[illegible]											
New York	[illegible]	652–, 72+	654	655	655–	654–	655, 657	D. 654	657, 74	D. 654	657, 74	657, 74
North Carolina	[illegible]							D. 658				
North Dakota	[illegible]	[illegible]+	[illegible]			[illegible]	78+		78		78	78+
Ohio	[illegible]	662–	663	663, 665	665	663, 665, 670		666		D. 666	668	664, 667
Oklahoma	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]
Oregon	[illegible]	[illegible]+								678	678	
Pennsylvania	[illegible]	673+, [illegible]+	675	675–		675–	674+					
Rhode Island	[illegible]		682	682		682	681, 89		680			
South Carolina	[illegible]		683	683		683						
South Dakota	[illegible]							D. 684		D. 684		
Tennessee	[illegible]											

BEEN ENACTED IN THE UNITED STATES AND CANADA.

may be found; numbers in other columns refer to the pages where may be found the laws in the Fourteenth Annual Report, B. A. I. Numbers expressed in *italics* refer to pages in this number signifies "and following page or pages."]

Imitation butter.					Imitation cheese (including filled cheese).				Miscellaneous.			General pure-food law.	States, etc.
Oleomargarine, etc.				Renovated butter, label required.									
Prohibited.	Yellow color prohibited.	Label on packages, or notification of use required.	Other laws.		Prohibited.	Yellow color prohibited.	Label or notice required.	Other laws.	Care of cows regulated.	Testing and paying for milk regulated.	Other miscellaneous laws.		
		557	556+, 563				561	560+, 563			563		United States.
	563	563											Alabama.
													Arizona.
		564											Arkansas.
	565	566	567	*38*		565	566	567			567		California.
	569					569	569						Colorado.
	571	571									*41*	573+, *41*	Connecticut.
	575	576			574								Delaware.
		579					579				580	579+	District of Columbia.
		42										*42*	Florida.
	582	582				582	582						Georgia.
		583										583	Idaho.
	587	585+, 587+					585+		584		585, 587	586, 588, *45*+	Illinois.
		589										*47*	Indiana.
	590	590				590	590		592	589, 591	591		Iowa.
												593+	Kansas.
	595											594+	Kentucky.
		596										*49*+	Louisiana.
598					598					597	596		Maine.
	52	*52*+	*52*						*51*		600+, *51*	599+	Maryland.
	607	605, 608		*54*			605		608		602+		Massachusetts.
		58	617	*57*	612						614	611+	Michigan.
	62	*63*+		622, *65*	*62*	*62*			*60*	*61*	623, *62*	*61*, *64*, *66*	Minnesota.
		623	623+								623		Mississippi.
	626	625+					624+				624		Missouri.
		627+	628				627+	628	628				Montana.
	629	628+	*68*+			629	628+	*68*+		*67*	631	631+	Nebraska.
		633							632		633		Nevada.
	636	636					636				633+		New Hampshire.
	643, 646	643, 645				643	643, 645		637		638+, *72*	648+	New Jersey.
											652	650+	New Mexico.
656, *73*	656, *73*			*73*	656, *73*	656, *73*			655		653, 655	*74*	New York.
		658										*75*+	North Carolina.
	80	*80*		*80*			*80*		*79*				North Dakota.
	666	663+, 666	663, 665				663+, 667+	663, 665	665		665	669, *81*	Ohio.
												670	Oklahoma.
			84	*82*				*84*	*82*+			*82*+	Oregon.
	87	*87*+	679, *87*	*86*				679			676	679+	Pennsylvania.
		680									682		Rhode Island.
	683	684				683	684						South Carolina.
	P. 685	685									684	685, *90*	South Dakota.
	686+	686		[illegible]			686				687	687+	Tennessee.
			[illegible]	[illegible]		[illegible]	[illegible]				*91*		Texas.
	92	*92*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						Utah.
	P. 690		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	*95*	689	*96*	Vermont.
	692+	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		691	*97*+	Virginia.
	100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			*104*+	Washington.
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			697	West Virginia.
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			*109*	Wisconsin.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			*109*+	Wyoming.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	706+		Canada.

STATE STANDARDS FOR DAIRY PRODUCTS.

Standards for the composition of dairy products have been established in several States and are (in June, 1900) as follows:

States.	Milk.			Skim milk.	Cream.	Butter.	Cheese.
	Total solids.	Solids not fat.	Fat.	Total solids.	Fat.	Fat.	Fat.
	Per cent.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per cent.*	
California	....	....	....	....	....	....	Full cream, 30 p. ct. fat. Half skim, 15 p. ct. fat. Skim, from skim milk. (Fancy cheese excepted.)
Colorado	....	....	....	....	....	....	35 p. ct. total solids to be fat.
District of Columbia	....	9	3.5	9.3	20	83 Not over 12 per ct. water or 5 p. c. salt	
Georgia	....	8.5	3.5				
Illinois[1]	12	....	3	....	[2]15	80	48 p. ct. total solids, fat.
Indiana	....	9	3	....	....	80	10 p. ct. milk fats.
Iowa	12.5	....	3	....	15	Not over 15 per ct. water or 6 p. c. salt	
Maine	12	....	3				
Massachusetts	13	9.3	3.7	9.3			
April-September	12	9	3				
Michigan	12.5	....	3				
	Sp. grav. 1.029-33	....	....	sp. grav. 1.032-37			
Minnesota	13	....	3.5	....	20	....	45 p. ct. total solids to be fat.
Missouri	....	....	....	....	....	....	From milk testing at least 3 p. ct. fat.
New Hampshire	13						
New Jersey	12						
New York[3]	12	....	3	....	....	....	Skim, from skim milk.
North Dakota	12	....	3	....	15	....	Skim, from skim milk.
Ohio[3]	12	....	3	....	....	80	20 p. ct. fat.
May and June	11.5						
Oregon[3]	12	8	3	sp. grav. 1.038	20	Not over 14 per ct. water.	
Pennsylvania (Milk and skim-milk standards refer to cities of 2d and 3d class.)	12.5 Sp. grav. 1.029-33	....	3	2.5 p. c. fat. 6 per ct. cream by vol. sp. grav. 1.032-37	....	....	Full cream, 32 p. ct. fat. Three-fourths cream, 24 p. ct. fat. One-half cream, 16 p. ct. fat. One-fourth cream, 8 p. ct. fat. Skim, below 8 p. ct. fat. (Fancy cheese weighing less than 5 pounds excepted.)
Rhode Island	12	....	2.5				
South Carolina	....	8.5	3				
Utah	....	....	....	9 per ct. solids not fat.	....	....	Skim, size regulated.
Vermont	12.5	9.25	....	[4]4			
May and June	12						
Washington	....	8	3	....	18	....	Full cream, 30 p. ct. fat. Skim, 15 per ct. fat. (Fancy cheese excepted.)
Wisconsin	....	....	3	....	....	....	Skim, size regulated.

---

[1] Condensed milk shall be made from milk containing at least the legal standard of 3 per cent

ABSTRACTS OF DAIRY LAWS.

In the following abstracts it is aimed to state briefly the principal features of all the national and State laws now (June, 1900) in force which apply to dairy products or their imitations, omitting matters of minor interest, as references to penalties, details of enforcement, disposition of fines, etc.

States having dairy commissioners or other officers specially charged with the enforcement of dairy laws usually give such officers necessary authority for securing evidence, having analyses made, and conducting prosecutions; it is also customary to allow them necessary traveling expenses in addition to the regular salary.

When a subject is followed by the words "No law," it should be understood there is no *special* law on that subject. It may, however, be covered by a pure-food or other law, an abstract of which is given under another heading.

UNITED STATES.

Milk. Import duty on fresh milk, 2 cents per gallon. *Condensed milk.*—Import duty on preserved, condensed, or sterilized milk, 2 cents per pound.

Butter. Butter is defined as the food product usually known as butter and made exclusively from milk or cream, with or without salt or color. Import duty, 6 cents per pound.

Cheese. Cheese is defined as the food product known as cheese and made exclusively from milk or cream, with or without coloring matter. Import duty, 6 cents per pound.

Oleomargarine and filled cheese. Each original package of oleomargarine or filled cheese must bear a prescribed label. Regulations concerning reports, etc., of manufacturers and branding of all packages not provided for by the law are made by the Commissioner of Internal Revenue. *Oleomargarine.*[1]—Oleomargarine is defined as certain (enumerated) manufactured substances, extracts, mixtures, and compounds, including such mixtures and compounds with butter, made in imitation of butter and intended to be sold for butter. Taxed 2 cents per pound (except that for export, which is not taxed). Import duty, 6 cents, and internal revenue tax on imported oleomargarine, 15 cents per pound. Manufacturers, wholesale dealers, and retail dealers are defined and taxed, respectively, $600, $480, and $48. *Filled cheese.*—Filled cheese is defined as all substances made from milk or skimmed milk with admixture of butter, oils, or compounds foreign to such milk, and made in imitation of cheese. Taxed 1 cent per pound. Import duty, 6 cents, and internal revenue tax on imported filled cheese, 8 cents per pound. Original packages shall be plainly branded "Filled cheese," and signs must be displayed where sales are made. Manufacturers, wholesale dealers, and retail dealers are defined and taxed, respectively, $400, $250, and $12.

Miscellaneous. Import duty on sugar of milk, 5 cents per pound.

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[1] See footnote, page 37.

PRINCIPAL SUBJECTS ON WHICH DAIRY LAWS HAVE

[Numbers in the first column show the pages of this bulletin where brief abstracts of the laws full on the subjects named at the heads of the columns. The plain figures refer to pages in bulletin. D. = Defined only. P. = Must be colored pink. A plus mark (+) following a page

States, etc.	Page of abstract.	State dairy commissioner or similar officer.	Milk.					Butter.		Cheese.		
			Standard prescribed.	Skim milk regulated.	Condensed milk regulated.	Impure milk restricted.	Other milk laws.	Defined or standard fixed.	Other butter laws.	Defined, standard prescribed or grades established.	Registered brands provided.	Other cheese laws.
United States	*9*						563+	D. 556	563	D. 560		563
Alabama	*10*											
Arizona	*10*											
Arkansas	*10*							D. 564				
California	*10*	568 *39*				*38+*			564	565	564	
Colorado	*11*	568								569	569	
Connecticut	*11*	571+ *41*		572		572+			573			
Delaware	*12*											
District of Columbia	*12*		580	577+		577+	576+, 578					
Florida	*12*											
Georgia	*13*		581	581		581						
Idaho	*13*											
Illinois[1]	*13*	*43+*	*43*	583+	588	583+	584					
Indiana[2]	*14*	*47*		589		589			589			589
Iowa	*15*	589+	592			592	591					592
Kansas	*15*			593		593						
Kentucky	*16*			594		594						
Louisiana	*16*								*50*			*50*
Maine	*16*		596	596		596+		D. 598		D. 598		
Maryland	*17*						*51+*					
Massachusetts	*17*	601+	*54*	603+	605	603	*54*	D. 606		D. 606		
Michigan	*18*	608+ *55+*	615	615		613+ *56*		D. *58*	613		612	613
Minnesota	*19*	623 *59+*	*60*	*60* *62*		*60+* *64+*	623 *61+*		*61* *63+*	*62+*	*62*	*61* *63+*
Mississippi	*20*											
Missouri	*20*									D. 625		624+
Montana	*21*											
Nebraska	*21*	*67+*		628, 631		628	631		628 *68+*			628 *68+*
Nevada	*22*			632		632						
New Hampshire	*22*		635	634		635	634	D. 635		D. 635		
New Jersey	*23*	639, 644+	637	637 640		636+, 640		D. 643	642	D. 643		642
New Mexico	*23*											
New York	*24*	652+ *72+*	654	655	655+	654+	655, 657	D. 654	657 *74*	D. 654	657 *74*	657 *74*
North Carolina	*25*							D. 658				
North Dakota	*25*	*77+*	*79*			*79*	*78+*		*78*		*78*	*78+*
Ohio	*26*	661+	663	663, 665	665	663, 665		666		D. 666	668	664, 667
Oklahoma	*27*					670						
Oregon	*27*	*83+*	*83*		*83*	*84*		*83*	*84*	*83*		*84*
Pennsylvania	*28*	673+ *86+*	675	675+		675+	674+			678	678	
Rhode Island	*29*		682	682		682	681 *89*		680			
South Carolina	*30*		683	683		683						
South Dakota	*30*							D. 684		D. 684		
Tennessee	*30*											
Texas	*31*											
Utah	*31*	*93+*		*91*		*91*	*91+*		*91+*			*91+*

a copy of which must be given to each purchaser, with verbal notice at the time of sale, in connection with which words like "creamery," "dairy," etc., are prohibited. Patrons of eating places shall be notified if substitutes of butter or cheese are used. Prohibited in State charitable institutions. *Process, or renovated, butter.*—Butter made from stale, rancid, or decomposed butter shall be plainly labeled "Process butter" or "Renovated butter."

Miscellaneous. State veterinarian may order slaughter of diseased animals at expense of owners.

County district attorneys shall prosecute offenders.

COLORADO.

Dairy commissioner. The dairy commissioner, appointed by the governor, shall be a practical dairyman; period of office, two years; salary, $1,200. May employ a deputy at salary of $1,000 per year and a chemist[1] at $10 per day. State appropriation $2,000 per annum for 1895 and 1896.

Milk. (No law.)

Butter. (No law.)

Cheese. All cheese must be branded, with brands procured from the dairy commissioner, "Colorado full-cream cheese," if not less than 35 per cent of total solids consists of butter fat; all containing less than this amount of fat, "Skim cheese."

Imitation butter and cheese. All articles not produced from pure milk or cream, in imitation of pure cheese or yellow butter, are prohibited; but oleomargarine and filled cheese are permitted if free from color or other ingredient to cause them to look like butter or cheese. They must be made in such form and sold in such manner as will advise the consumer of their real character. *Imitation cheese.*—Cheese containing any foreign fats, oleaginous substances, rancid butter, etc., shall be branded "Imitation cheese."

Miscellaneous. (No law.)

CONNECTICUT.

Dairy commissioner. The dairy commissioner is appointed by the governor; period of office, two years; salary, $1,500 per year. He may appoint a deputy at salary of $1,200 per year. (Office expenses limited to $1,000 per year.[2]) Two thousand five hundred dollars annually appropriated to the Connecticut Agricultural Experiment Station to carry out the provisions of the pure-food act.

Milk. Connecticut Agricultural Experiment Station may fix standard. *Skimmed milk.*—Skimmed milk must be plainly labeled. *Adulterated milk.*—The sale or delivery of adulterated, tainted, or diseased milk to a butter or cheese factory is prohibited.

Butter. Tub butter in prints, pats, etc., must be labeled "Tub butter."

Cheese. (No law.)

Imitation butter. Imitation butter, defined as any article resembling butter in appearance and not made wholly, salt and coloring matter excepted, from cow's milk, is prohibited; but oleomargarine or imitation butter, free from color or other ingredient to cause it to look like butter, and made in such form and sold in such manner as will advise consumer of its real character, is permitted. Words like "butter," "dairy," etc., shall not form a part of its name or appear on its package. Imitation butter shall be sold only in labeled packages, or registered places which display signs provided by the dairy commissioner, and purchasers shall be informed orally of the character of the article at the time of sale. Use of imitation butter in public eating places, bakeries, etc., must be made known by signs.

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[1] See footnote, page 40.

[2] See footnote, page 41.

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. Any article of food or drink is deemed adulterated if any inferior or injurious substance has been added to it, if any valuable constituent has been removed, if it is an imitation of or sold as another article, if it is colored to conceal inferiority, if it contains any preservative not known to the purchaser, if it is decomposed or diseased, or the product of a diseased animal, etc. With certain exceptions, such articles are prohibited.

DELAWARE.

Milk. (No law.)

Butter. (No law.)

Cheese. (No law.)

Imitation butter and cheese. The manufacture or sale of any article not produced from unadulterated milk or cream, which is in imitation of pure yellow butter or designed to take the place of pure cheese, is prohibited; but oleomargarine is permitted if in a distinct form, free from butter color, and sold in such manner as to show its real character. It shall be plainly marked "Oleomargarine."

Miscellaneous. (No law.)

DISTRICT OF COLUMBIA.

Milk. Milk standard, 9 per cent solids not fat, 3½ per cent fat. Permit to sell milk must be obtained from health officer, who issues regulations for the government of dairies and the sale of milk. *Skimmed milk.*—Skim-milk standard, 9.3 per cent total solids. Must be plainly marked "Skim milk." *Adulterated milk.*—Diseased and unwholesome milk is prohibited. *Cream.*—Cream standard, 20 per cent fat.

Butter and cheese. Butter and cheese shall be made exclusively of milk or cream, with or without common salt. *Butter.*—Butter standard, 83 per cent fat and not more than 12 per cent water or 5 per cent salt.

Imitation butter and cheese. Substances in semblance of butter or cheese, not made exclusively of milk or cream, but with the addition of melted butter to take the place of cream, or any oil, shall be plainly branded on each package "Oleomargarine," and a label, similarly printed, must accompany each retail sale.

Miscellaneous. (No law.)

Pure food. Any food or drink is deemed adulterated if any inferior or injurious substance has been mixed with it, if any valuable constituent has been removed, if it is an imitation of or sold as another article, if it is decomposed or diseased, if it is colored to conceal inferiority, etc. With certain exceptions, which shall be made known to the purchaser, such articles are prohibited.

FLORIDA.

Milk. (No law.)

Imitation cheese. (No law.)

Miscellaneous. (No law).

Pure food. The sale of any unwholesome provisions without knowledge of the buyer and the adulteration of any food with substance injurious to health are misdemeanors.

GEORGIA.

Milk. Milk standard, 3½ per cent fat, 8½ per cent solids not fat. *Skimmed milk.*—Skimmed milk is defined as milk below the standard. *Adulterated milk.*—The sale of adulterated, impure, or diseased milk is prohibited.

Butter. (No law.)

Cheese. (No law).

Imitation butter and cheese. Imitation butter or cheese is defined as any article not produced from pure milk or cream—salt, rennet, and coloring matter excepted—in semblance of butter or cheese and designed to be used as a substitute for either. Shall not be colored to resemble butter or cheese. Every package must be plainly marked "Substitute for butter" or "Substitute for cheese," and each sale shall be accompanied by verbal notice and by a printed statement that the article is an imitation, the statement giving also the name of the producer. The use of these imitations in eating places, bakeries, etc., must be made known by signs.

Miscellaneous. (No law.)

IDAHO.

Milk. (No law.)

Butter. (No law.)

Cheese. (No law.)

Imitation butter. Oleomargarine, butterine, imitation butter, or mixture imitating butter shall be branded when sold, and shall not be sold as butter.

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. The adulteration of any article of food or drink with fraudulent intent, or sale of same as unadulterated, is a misdemeanor.

ILLINOIS.

State food commissioner. The State food commissioner is appointed by the governor; first term after passage of law, two years; thereafter four years; salary, $2,500 per annum. He may appoint two assistant commissioners, one an expert on dairy products, the other a chemist to be known as State analyst, at $1,800 each per year, and not exceeding six inspectors at $3 per day. His authority extends to all foods. State board of health shall assist in collecting samples, and State's attorney shall prosecute cases. Annual reports are made to the governor, and the publication of monthly bulletins is authorized. One thousand five hundred dollars is appropriated for the establishment of a chemical laboratory, and $600 per year for its maintenance.

Milk. Milk standard, 12 per cent total solids, 3 per cent fat (must be from healthy cows and free from preservative).[1] Cans and vehicles used in the retail trade of milk shall be marked with the dealer's name and the locality whence milk comes. *Cream.*—(Coffee cream shall contain at least 15 per cent fat and whipping cream 22 per cent fat.)[1] *Skimmed milk.*—Skimmed milk may be sold as such, and each can or vessel shall be plainly marked "Skimmed milk." *Condensed milk.*—(Condensed milk shall be made from milk containing at least 3 per cent of butter fat and evaporated to one-third or less of original volume. The word

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[1] See footnote, page 45.

"cream" on cans is evidence of fraud; condensed skim milk must be so labeled. Canned goods must be labeled to show grade, and name of manufacturer.)[1] The addition of sugar to condensed milk is permitted. *Adulterated milk.*—The sale of adulterated or diseased milk, or its delivery to a factory, is prohibited. Adulteration after delivery to a factory is a misdemeanor.

Butter. (Shall contain at least 80 per cent fat.)[1] Cooperative creameries and butter factories shall give bond in the penal sum of $6,000 and keep a monthly report of their operations posted conspicuously in factory for the inspection of patrons.

Cheese. ("Whole milk" cheese must contain at least 48 per cent fat to total solids.)[1]

Imitation butter. Imitation butter is defined as any article not produced from pure milk or cream—salt, rennet, and coloring matter excepted—in semblance of butter and designed to be used as a substitute for it. Shall not be colored to resemble butter. All packages must be plainly branded "Oleomargarine," "Butterine," "Substitute for butter," or "Imitation butter." Each sale shall be accompanied by notice to the purchaser that the substance is imitation butter. (Imitation butter shall not be sold as "Creamery" or "Dairy.")[1]

The State's attorney is charged with enforcement of the law relating to "Substitutes for butter."

Imitation cheese. Imitation cheese must be distinctly marked with true and appropriate name of the article, and label bearing such name must be delivered with same when sold.

Miscellaneous. Care and food of dairy cows regulated.

Pure food. An article of food is diseased and adulterated when inferior substances have been mixed with it; when any valuable constituent has been abstracted; if it is an imitation of or sold as another article; if it is altered to conceal inferiority; if it contains any poisonous or injurious substance; if it is decomposed or from an unhealthy animal, etc. With certain common exceptions and labeled articles, all such are prohibited.

INDIANA.

Inspector of foods. The State health officer is designated State inspector of foods and drugs. The State board of health investigates adulterations of foods and establishes measures for enforcement of the law. Health officers throughout the State act as food inspectors.

Milk. (Milk standard, 3 per cent fat, 9 per cent solids not fat.)[2] *Adulterated milk.*—The sale of adulterated, diseased, etc., milk to anyone or its delivery to a factory is prohibited. (Use of any coloring matter or antiseptic is an adulteration; milk from a cow near time of parturition or diseased or improperly fed is considered adulterated.)[2]

Butter and cheese. (Butter and cheese shall be made exclusively from milk and cream, with or without salt or [enumerated] coloring matters, etc.)[2] The use of poisonous or deleterious substances in their manufacture is prohibited. *Butter.*—(Defined, shall contain at least 80 per cent fat and not over 15 per cent water or 6 per cent salt, and shall contain no foreign fat nor preservative, etc.)[2] *Cheese.*—(Cheese containing any antiseptic other than salt shall be

Imitation butter. Butter other than that made from pure milk, when sold or used in hotels, etc., must be plainly labeled "Oleomargarine." (Margarine is defined; considered adulterated if it contains over 15 per cent water or 6 per cent salt or any glucose or preservative or other than certain colors.)[1]

Imitation cheese. (Cheese containing any other fats than milk fats shall be plainly marked "Filled cheese.")[1]

Miscellaneous. (No law.)

Pure food. An article of food is deemed adulterated when inferior substances have been mixed with it; when any valuable constituent has been abstracted; if it is in imitation of or sold as another article; if it is decomposed or from an unhealthy animal; if it is colored to conceal inferiority; if it contains any poisonous or injurious substances, etc. With certain common exceptions, which must be labeled, such articles are prohibited. (A food containing an antiseptic shall be considered adulterated unless plainly labeled with name of antiseptic used.)[1]

IOWA.

Dairy commissioner. The dairy commissioner is appointed by the governor, shall have practical knowledge of dairying; term of office, two years; salary, $1,500 per annum; shall give bond for $10,000. He may employ clerical help at $75 per month and an agent at $3 per day in each city of over 10,000 inhabitants to collect milk samples. (In addition to salary of the commissioner, an appropriation of $4,000 is made for the conduct of the office.)[2]

Milk. Milk standard, 12½ per cent solids, 3 per cent fat. Milk dealers in cities shall register with the dairy commissioner and receive permits from him. Tests of milk in factories, etc., must be accurate; certified test bottles are furnished by the commissioner. *Skimmed milk.*—Skimmed milk may be sold as such. *Cream.*—Standard, 15 per cent fat. *Adulterated milk.*—The sale of adulterated, unwholesome, and diseased milk, or delivery to a factory, is prohibited.

Butter. (No law.)

Cheese. *Skimmed-milk cheese.*—Skimmed-milk cheese shall be plainly marked.

Imitation butter and cheese. Imitation butter and cheese is defined as any article not produced from pure milk or cream—salt, rennet, and coloring matter excepted—in semblance of butter or cheese and designed to be sold as a substitute for either of them. Shall not be colored to resemble butter or cheese. Every package shall be plainly marked "Substitute for butter" or "Substitute for cheese," and each sale shall be accompanied by a verbal notice and by a printed statement that the article is an imitation, the statement giving also the address of the maker. The use of these imitations in hotels, bakeries, etc., must be made known by signs.

Miscellaneous. Persons engaged in dairying shall keep their premises in hygienic condition and shall report statistics, etc., to the dairy commissioner. Care of cows is regulated.

KANSAS.

Milk. *Adulterated milk.*—The sale of adulterated, skimmed, tainted, or diseased milk, or its delivery to any butter or cheese factory, is prohibited.

Butter. (No law.)

Cheese. (No law.)

Imitation butter. (No law.)

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[1] See footnote, page 48.

[2] See footnote, page 49.

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. Any article of food or drink is deemed adulterated if any injurious or inferior substance has been added to it, if any valuable constituent has been removed, if it is an imitation of or sold as another article, if it is diseased or tainted, if it is colored to conceal inferiority. With certain exceptions, which must be plainly labeled, such articles are prohibited.

KENTUCKY.

Milk. *Skimmed milk.*—Skimmed milk shall not be sold with intent to defraud. *Adulterated milk.*—Adulterated milk, or milk from a diseased animal or an animal fed on "brewers' slop," etc., shall not be sold or used in the manufacture of butter or cheese.

Butter. (No law.)

Cheese. (No law.)

Imitation butter. Oleomargarine, butterine, or kindred compound, made in such form and sold in such manner as will advise the customer of its real character, and free from color or other ingredient to cause it to look like butter, is permitted.

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. An article of food or drink is deemed adulterated if any inferior or injurious article has been added to it, if it is an imitation of or sold as another article, if it is colored to conceal inferiority, if it is diseased or decomposed, etc.; such articles are prohibited. Inspections and analyses are made under the supervision of the Kentucky Experiment Station. Falsely branding products to be sold is prohibited.

LOUISIANA.

Milk. (No law.)

Butter and cheese. Wholesale packages of butter and cheese and packages from which these are sold at retail shall be stamped to show true quality.

Imitation butter. Such substances as oleomargarine, butterine, bogus butter, etc., shall be plainly labeled to indicate their composition. They shall not be sold as butter.

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. An article of food or drink is deemed adulterated if any inferior or injurious substance has been added to it, etc. Such are prohibited. The State board of health is charged with the investigation of adulterations of foods; analyses may be published.

MAINE.

Milk. Milk standard, 12 per cent solids, 3 per cent fat. All glassware used for testing milk delivered at factories must be tested for accuracy under the direction of the director of the experiment station. Specific gravity of sulphuric

Milk inspectors shall be appointed in towns of more than 3,000 inhabitants, and may be appointed in smaller towns. They are required to keep a record of the names and addresses of all dealers.

Butter and cheese. Butter and cheese are defined as the products usually so called, and manufactured exclusively from milk or cream, with salt and rennet, and with or without coloring matter.

Imitation butter and cheese. Any article in imitation of yellow butter or cheese and not made exclusively of milk or cream is prohibited.

Miscellaneous. (No law.)

MARYLAND.

Milk. All persons supplying milk to cities and towns shall register their cattle with the live stock sanitary board.

The mayor and city of Baltimore shall make regulations for the sale and provide by ordinance for the inspection of milk and food products; shall provide for and fix compensation of inspectors and analysts.

Butter. (No law.)

Cheese. Cheese made from pure skimmed milk is permitted.

Imitation butter. The manufacture, sale, transfer, etc., of any article containing any fat or oil not produced wholly from pure milk or cream, and which is in imitation of pure yellow butter, is prohibited; but oleomargarine, free from color to cause it to look like yellow butter and made in such form and sold in such manner as will advise the purchaser and consumer of its real character, is permitted. Placards reading "Oleomargarine sold here" shall be displayed where it is sold; it shall not be sold as butter; it shall not be used in public eating places, hospitals, schools, etc., unless guests or inmates are orally informed and signs are displayed reading "Oleomargarine used and served here."

Imitation cheese. (No law.)

Miscellaneous. The live stock sanitary board shall have inspected, at least annually, all premises where cows are kept and enforce rules for sanitary conditions—proper construction of stables, cleanliness, care of cows, etc. At request of owners shall furnish certificates of health when the rules are complied with. Appropriation for expenses, $3,000 annually.

Pure food. Diseased, corrupted, or unwholesome milk or other foods shall not be sold. Mixing or coloring any article of food or drink with any ingredient for gain, unless same is handled under its true name and its package is plainly marked, etc., is prohibited.

State board of health is given special powers and assistance to detect and expose adulterations and corruptions of foods and to conduct prosecutions. Two thousand five hundred dollars are annually appropriated for making chemical and scientific examinations of suspected foods and drinks.

MASSACHUSETTS.

Dairy bureau. The governor shall appoint three members of the board of agriculture to constitute a dairy bureau; term of office, three years; compensation, $5 per day of actual service. Secretary of board[1] is executive officer of the bureau, and receives therefor $500 per annum in addition to salary from board. Governor may appoint an assistant to the secretary; salary, $1,200 per annum. Agents, assistants, experts, etc., may be employed when necessary. Expenditures limited to $7,000 a year.

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[1] See first footnote, page 53.

Milk. Milk standard from April to September, 12 per cent total solids—9 per cent solids not fat, 3 per cent fat; in other months, 13 per cent total solids—9.3 per cent solids not fat, 3.7 per cent fat. Milk dealers are registered and peddlers are licensed. *Skimmed milk.*—Skimmed milk includes that below the standard for pure milk. It must contain at least 9.3 per cent solids not fat and be plainly marked "Skimmed milk." *Condensed milk.*—Condensed milk must be labeled with name of manufacturer; if in hermetically sealed packages, brand and contents must be given. *Adulterated milk.*—The sale of adulterated, diseased, or below-standard milk, or its possession with intent to sell, is prohibited. Convictions for selling adulterated milk are advertised in the newspapers.

Milk inspectors are appointed by the mayor and aldermen of cities and selectmen of towns.

Butter and cheese. For the purpose of an early act, butter and cheese are defined as products usually known by these names and made exclusively from milk or cream, with salt or rennet, and with or without coloring matter.

Imitation butter. The sale, or possession with intent to sell, of an article made wholly or partly out of any fat or oil, etc., not from pure milk or cream and which is in imitation of yellow butter, is prohibited; but oleomargarine, free from color or other ingredient to cause it to look like butter, and made in such form and sold in such manner as will advise the consumer of its real character, is permitted. It shall not be sold as butter, nor shall words like "dairy," "creamery," etc., or the name of any breed of dairy cattle be used in connection with it. All packages exposed for sale must be plainly marked "Oleomargarine," and labels similarly marked must accompany retail sales. Stores where it is sold and wagons used for delivery must display signs, and hotels, etc., using it must notify guests. Persons selling oleomargarine must be registered and conveyers licensed. *Renovated butter.*—Renovated or process butter shall be plainly labeled "Renovated butter."

Milk inspectors are charged with the inspection of imitation butter.

Imitation cheese. All articles in imitation of or intended as substitutes for cheese, not made exclusively of milk or cream, etc., must be plainly marked "Imitation cheese." Labels similarly marked must accompany retail sales.

Milk inspectors are charged with the inspection of imitation cheese.

Miscellaneous. Feeding garbage to milch cows is prohibited.

MICHIGAN.

Dairy and food commissioner. The dairy and food commissioner is appointed by the governor; term of office, two years; salary, $1,200 per year; must give bond for $10,000; shall appoint a deputy commissioner at $1,000 and a chemist at not more than $1,200 per year, and may appoint two clerks at $60 per month each, six inspectors at $3 per day, and an assistant chemist at $1,000 per year. Authority extends to all food and drink products. Commissioner shall make detailed annual reports to the governor and issue popular monthly reports on foods, adulterations, etc. Annual appropriation, $18,000.

Milk. Milk standard, 12½ per cent total solids, 3 per cent fat, specific gravity, between 1.029 and 1.033. *Skimmed milk.*—The specific gravity of skimmed milk must be between 1.032 and 1.037. It may be sold for what it is from cans plainly labeled "Skimmed milk." *Adulterated milk.*—The sale of adulterated, diseased, preserved, etc., milk to any person, or its delivery to a factory, is prohibited. Milk from sick cows or those fed on distillery refuse, etc., is forbidden.

The police commissioners of Detroit shall appoint an officer to act as milk inspector in that city. He shall inspect dairies, milk shops, etc., in Wayne County.

Common councils or boards of trustees in cities and towns may appoint and fix the compensation of milk inspectors.

Butter and cheese. Butter and cheese shall not contain any poisonous or deleterious substance. Proprietors of butter and cheese factories purchasing milk from more than three persons shall register with the dairy and food commissioner. *Cheese.*—A registered brand, with a suitable device, and the words "Michigan full-cream cheese," for use on full-cream cheese and their packages, will be furnished for $1 to factories applying to the commissioner. False brands are prohibited.

Imitation butter. Oleomargarine is defined as any substance formerly known by this or similar name, or as certain extracts or mixtures of fats, oils, etc., made in imitation of or to be used as butter. Every package must be plainly labeled with true name, the address of the manufacturer, and the names of all ingredients. The use of dairy terms in connection with its sale is forbidden. Placards must be displayed where it is sold and in public eating places where it is served. Verbal information and printed notice must accompany each sale. *Process butter.*—Process butter must be plainly labeled.

Imitation cheese. Any article in semblance of pure cheese, containing melted butter or fats, or oils not produced from milk, is prohibited.

Miscellaneous. (No law.)

Pure food. An article of food is deemed adulterated when inferior substances have been mixed with it; when any valuable constituent has been abstracted; if it is in imitation of or sold as another article; if it is decomposed or from an unhealthy animal; if it is colored to conceal inferiority; if it contains any poisonous or injurious substances, etc. With certain common exceptions, such articles are prohibited.

MINNESOTA.

Dairy and food commissioner. The dairy and food commissioner is appointed by the governor. Term of office, two years; salary, $1,800 per annum. He may appoint an assistant commissioner at a salary of $1,500 per year, a chemist at $1,500 per year, a secretary at $1,200 per year, and an assistant chemist and necessary inspectors at $100 per month each. Biennial reports are made to the legislature. May issue bulletins. His authority extends to other foods. Fifteen thousand dollars is annually appropriated for his work.

Milk. Milk standard, 13 per cent solids, 3½ per cent fat. Persons receiving milk shipped by train or cars must empty the vessels before the milk is sour and immediately clean them. Milk-testing apparatus must be standard. *Cream.*—Cream standard, 20 per cent fat. *Skimmed milk.*—Skimmed milk may be used for making skim cheese. Cans containing skimmed milk for sale must be plainly marked "Skimmed milk." *Adulterated milk.*—Unclean, unhealthy, adulterated, etc., milk includes that drawn from cows near the time of parturition, or fed on distillery waste, etc. (ensilage excepted). Its sale or exchange or delivery to any factory, or its use for making cream or any food, is prohibited. The use of preservatives is prohibited.

Milk shippers and sellers shall make detailed reports to commissioner.

Milk dealers in towns of more than 1,000 inhabitants shall annually obtain from the commissioner, at the cost of $1, a license and give certain information regarding the conduct of their business.

Any city council may provide for the inspection of milk, dairies, and herds supplying milk for city use.

Butter and cheese. Use of preservatives is prohibited. Unless all the milk delivered is bought by a factory, none of it shall be used by the operators for themselves without the consent of the owners. Factories shall keep a detailed account of their operations, open to the inspection of patrons. Factory proprietors shall make detailed reports to the commissioner. *Cheese.*—At least 45 per cent of the total solids of cheese must be fat. It shall not be falsely branded. A registered brand with a motto and the words "Minnesota State full-cream cheese," for use on full-cream cheese and their packages, is issued to factories upon application to the commissioner. *Skim cheese.*—Skim cheese is that below the standard for full-cream cheese. It is permitted if the packages are plainly marked "Skim cheese." A placard must be displayed where it is sold.

Imitation butter and cheese. The manufacture or sale of any substance in imitation of butter or cheese is prohibited.[1] Coloring oleomargarine to resemble butter is prohibited. Notice of use of oleomargarine in public eating places must be given. *Patent butter.*—Butter made by any process by which casein and other ingredients of milk are made to replace pure fat shall be plainly marked "Patent butter," and a printed card stating its ingredients shall be given to each purchaser. *Renovated butter.*—Every package of process, or renovated, butter shall be plainly labeled "Renovated butter."

Miscellaneous. Milch cows shall not be kept in a crowded or unhealthy condition nor fed unwholesome food or any that produces impure milk.

Pure food. The adulteration of food or the sale of adulterated food is a misdemeanor.

MISSISSIPPI.

Milk. (No law.)

Butter. (No law.)

Cheese. (No law.)

Imitation butter. Packages of oleomargarine or similarly manufactured butters shall be plainly labeled with the correct name of their contents, and the product shall be sold by that name. A privilege tax of $5 is imposed upon persons selling the articles named.

Imitation cheese. (No law.)

Miscellaneous. It is unlawful to milk the cow of another, or to confine her with intent to take her milk, without the consent of the owner.

MISSOURI.

State board of agriculture. The State board of agriculture is charged with the enforcement of the act relating to butter substitutes and cheese branding. (Appropriation, $5,000 for two years.)[2]

Milk. All cities and towns have power to license dairies, provide for inspection, etc.

Butter. (No law.)

Cheese. Cheese made from milk testing at least 3 per cent fat, or cream from the same, is deemed a full-cream cheese. *Skim cheese.*—Any cheese not made from pure milk testing at least 3 per cent fat, or cream from the same, shall be plainly branded "Skimmed-milk cheese" or "Not full-cream cheese," and its true name given.

Imitation butter. Imitation butter is defined as every article not produced wholly from pure milk or cream, made in semblance of and designed to be used as a substitute for pure butter; it shall not be sold as butter; shall not be colored to resemble butter unless it is to be sold outside the State; original packages shall be plainly stamped "Substitute for butter;" in hotels, etc., vessels in which it is served must be marked "Oleomargarine," or "Impure butter."

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[1] See footnote, p. 62.

[2] See footnote, page 66.

Imitation cheese. Any article not produced wholly from pure milk or cream and designed to take the place of cheese shall have its original packages stamped with its true name.

Miscellaneous. (No law.)

MONTANA.

Milk. (No law.)

Butter. (No law.)

Cheese. (No law.)

Imitation butter and cheese. Any article in semblance of butter or cheese, and not made wholly from milk or cream, must be plainly labeled "Oleomargarine" or "Imitation cheese," and a printed label bearing the same word or words must be delivered to the purchaser with retail sales. Places where these articles are sold or used must display signs, and information as to their character be given if requested. Dealers must pay a license of 10 cents a pound on each pound sold.

Miscellaneous. Cows shall not be kept in unsanitary places or fed food that produces unwholesome milk.

NEBRASKA.

Deputy food commissioner.[1] The governor of the State is food commissioner and appoints a deputy at a salary of $1,500. The latter holds office at pleasure of the governor and must be a person with knowledge of dairy products; he must give a bond for $3,000; may employ a clerk at $75 per month, and a chemist; reports annually to the governor; authority extends to vinegar and cider. Appropriation $5,000, but shall not exceed revenue from act.

Milk. Milk and cream standards may be established by the food commissioner. *Adulterated milk.*—The sale of adulterated, skimmed, diseased, or tainted milk, or its delivery to a factory, is prohibited.

Butter and cheese. No poisonous or deleterious matter shall be used in the manufacture of butter or cheese. Wholesale dealers in butter and cheese, creameries, cheese factories, and skimming stations are defined, and must pay for annual permits as follows: Wholesale dealers, $10; creameries, $10; cheese factories, $10; skimming stations, $1. *Ladle butter.*—Manufacturers of ladle butter are defined; must pay $15 for annual permits.

Use of cream by employees of a factory without permission of patrons is prohibited.

Imitation butter and cheese. Imitation butter or cheese is defined as any article made in semblance of and designed to be used as a substitute for pure butter or cheese, and not produced wholly from pure milk or cream: the use of salt, rennet, and harmless coloring matter are permitted. These articles, including any having melted butter added to them, shall not be colored to resemble butter or cheese; shall be plainly marked "Imitation butter" or "Imitation cheese;" verbal and printed information of the character of the articles and address of the maker shall be given at time of sale; signs shall be displayed in public eating places where used. Manufacturers and dealers, except retailers, shall report monthly, amounts sold, to whom, etc. Manufacturers and dealers in imitations are defined and must pay for annual permits as follows: Manufacturers of imitation butter or cheese, $100; wholesale dealers in imitation butter or cheese, $50—this not required from manufacturers who sell their own products only; retail dealers in imitation butter or cheese, $25.

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[1] See footnote, page 67.

Miscellaneous. (No law.)

Pure food. Any article of food or drink is deemed adulterated if any inferior or injurious substance has been mixed with it, if any valuable constituent has been removed, if it is in imitation of or sold as another article, if it is diseased, decomposed, infected, if it is colored to conceal inferiority, etc. With certain exceptions, which shall be labeled, such articles are prohibited.

NEVADA.

Milk. *Skimmed milk.*—Skimmed milk may be sold as such. *Adulterated milk.*—The sale or exchange of adulterated milk, or milk from cows which are improperly cared for, or fed "swill" or other decomposed matter, is a misdemeanor.

Milk inspectors are appointed and their compensation fixed by board of county commissioners. They shall inspect milk sold by venders and prosecute violations.

Butter. (No law.)

Cheese. (No law.)

Imitation butter. Any article in semblance of butter but not made exclusively of milk or cream, or containing melted butter, shall be in packages plainly marked "Oleomargarine."

Imitation cheese. (No law.)

Miscellaneous. Care of cows regulated.

NEW HAMPSHIRE.

Milk. Milk standard, 13 per cent solids. It shall be sold by wine measure, and the capacity of vessels shall be marked upon them. *Skimmed milk.*—Milk from which any cream has been removed can be sold only from vessels plainly marked "Skimmed milk." *Adulterated milk.*—The sale of adulterated, unwholesome, diseased, etc., milk, and that from cows fed on brewery refuse, etc., is prohibited.

The mayor and aldermen of cities and the selectmen of towns may appoint and fix the compensation of milk inspectors. In towns having inspectors all milk dealers must register and obtain, at the cost of 50 cents per year, a license which gives full details as to the conduct of their business. Names of persons convicted of selling adulterated milk are published.

Butter and cheese. "Butter" and "cheese" are understood to mean the products usually known by those names, and which are manufactured exclusively from milk or cream, with salt, and with or without coloring matter, and if cheese, with rennet.

Imitation butter and cheese. Any article not made wholly from unadulterated milk or cream which is in imitation of pure yellow butter or cheese is prohibited, unless in packages plainly marked "Adulterated butter," "Oleomargarine," or "Imitation cheese." A label printed with the words on the original package shall be delivered with each retail sale. Oleomargarine free from color or ingredient to cause it to look like butter, and made in such form and sold in such manner as will advise the consumer of its real character, is permitted. Notice of the use of substitutes for butter in hotels, etc., shall be given to patrons.

The State board of agriculture is in charge of the enforcement of the laws on this subject.

Miscellaneous. (No law.)

NEW JERSEY.

Dairy commissioner. Dairy commissioner is appointed by State board of health; term of office, three years; salary, $2,000 per annum. He may appoint and fix the compensation of such assistants, chemists, agents, clerks, and counsel as are necessary. Expenses are limited to $10,000 per year. Authority is extended to all foods and drugs.

Milk. Milk standard, 12 per cent solids. *Skimmed milk.*—Skimmed milk shall be sold only in or from cans plainly marked "Skimmed milk." In cities of the first class it is prohibited. *Adulterated milk.*—The sale of adulterated or unwholesome milk or its delivery to a cheese factory is prohibited. It is defined as any which has been adulterated by the addition of any substance, or any from cows poorly cared for or fed unwholesome foods, or that has been exposed to infection by diseased persons, etc.

It is unlawful for any person to use a milk can belonging to another and marked with the owner's name or initials without his consent. If they are so used and found, their contents may be emptied.

Butter and cheese. The terms natural butter and natural cheese are taken to mean the products usually so called, made exclusively from milk or cream, with salt and rennet and with or without coloring matter or sage. Each butter or cheese package must be branded with its weight and the name of the manufacturer.

Imitation butter and cheese. Any article made wholly or partly out of any fat, oil, etc., not from pure milk or cream, artificially colored in imitation of pure yellow butter, is prohibited; but oleomargarine and imitation cheese are permitted if free from artificial color and in original package, encircled by a wide black band bearing the name of the maker and having the name of the contents plainly branded on them with a hot iron. Retail sales shall be accompanied by a printed card on which the name of the substance and the address of the maker are plainly printed, and the customer shall be orally informed of the character of the article at the time of sale.

Miscellaneous. Cows shall be properly cared for and fed. Milch cows kept in towns shall be registered. State dairy commissioner shall be notified when any of them are supposed to be diseased.

A commission of five is appointed by the president of the State board of agriculture to investigate tuberculosis. Owners are paid half value of condemned animals.

Pure food. An article of food or drink is deemed to be adulterated if any inferior or injurious substance has been added to it, if any valuable constituent has been removed, if it is an imitation of or sold as another article, if it is diseased or decomposed, if it is colored to conceal inferiority, etc. With the exception of articles named by the board of health and ordinary articles of food, which shall be branded, such articles are prohibited.

NEW MEXICO.

City councils. City councils shall provide for the inspection of dairy products.

Milk. (No law.)

Butter. (No law.)

Cheese. (No law.)

Imitation butter. (No law.)

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. Any article of food or drink shall not be knowingly sold if it is unhealthy, or if any valuable constituent has been removed from it, or if it contains ingredients not asked for, unless notice is given to the purchaser. The use of an injurious coloring matter or any diseased or decomposed substance in the manufacture of food is prohibited.

NEW YORK.

Commissioner of agriculture. Commissioner of agriculture is appointed by the governor; term of office, three years; salary, $4,000 per annum. He may appoint assistant commissioners, chemists, clerks, agents, and counsel necessary for the work of his office and fix their compensation; also may appoint five expert butter and cheese makers to inspect factories, give instruction, etc.

Milk. Milk standard, 12 per cent solids, 3 per cent fat. Pure milk is defined as sweet and unadulterated; pure cream is that taken from such milk. Milk shall not be kept in unclean vessels nor in unsanitary places. All cans, etc., containing milk to be sold in counties other than where produced, must be plainly branded with name of the county of production; vehicles from which it is sold must be similarly marked. Glass bottles are excepted from the provision, but they must bear the name of the vender. *Skimmed milk.*—Skim milk may be delivered to skim-cheese factories, and, except in New York and Kings counties, it may be sold as skimmed milk for use in the county where it is produced or an adjoining county. *Condensed milk.*—Condensed milk must be made from pure and wholesome milk, and its proportion of milk solids shall be in quantity the equivalent of 12 per cent of milk solids in crude milk, of which 25 per cent shall be fat. All packages of condensed milk shall be labeled with name of manufacturer, etc. *Adulterated milk.*—Adulterated milk is defined as any below the standard, or which has been altered, or any from cows poorly cared for or fed certain unwholesome foods. Its sale, exchange, delivery to a butter or cheese factory, or use for any food is prohibited. Pure skim milk is excepted as above. Preservatives and poisonous colors are prohibited.

Butter and cheese. Butter and cheese are defined as the products of the dairy usually known by those terms, manufactured exclusively from pure unadulterated milk or cream, with or without salt, rennet, coloring matter, or sage. False brands are prohibited. County trade-marks may be adopted by county dairymen's associations. Preservatives and poisonous colors are prohibited. *Cheese.*—A registered brand, with the words "New York State full cream cheese," for use on full milk cheese and their packages, will be furnished to factories applying to the commissioner of agriculture. *Skim cheese.*—Pure skim cheese may be made from clean, pure skim milk.

Unless factory operator buys all the milk delivered, he shall not use any of it or its products without consent of the owners, and he must keep an account of all factory operations for the inspection of his patrons.

Imitation butter and cheese. Imitations shall not be sold as butter or cheese. The terms oleomargarine, butterine, imitation butter, or imitation cheese mean any article in the semblance of butter or cheese not the usual product of the dairy and not made exclusively from unadulterated milk, or having any oil, lard, melted butter, etc., as a component part. *Imitation butter.*—The manufacture of oleomargarine or any article in imitation of butter wholly or partly from fats or oils not produced from milk, or the sale or the use in hotels, etc., of such articles, is prohibited. No article intended as an imitation of butter and containing oils, fats, etc., not from milk, or melted butter in any condition, shall be colored yellow. *Renovated butter.*—Butter produced by melting original packing stock, etc., shall be plainly labeled "Renovated butter." *Imitation cheese.*—The manufacture or sale of any article in imitation of pure cheese, into which any animal fat, oil, or butter, etc., is introduced is prohibited.

Miscellaneous. Milch cows shall not be kept in an unsanitary condition nor be fed distillery waste, spoiled feeds, or any food that injures milk; silage is permitted.

NORTH CAROLINA.

Milk. (No law.)

Butter. Butter is defined as the product manufactured from fresh and pure milk and cream.

Cheese. (No law.)

Imitation butter. Oleomargarine and butterine are defined as articles manufactured in imitation of butter, and which are composed of any ingredient or ingredients in combination with butter. Original packages shall be labeled with names of chemical ingredients and their proportions.

District, county, and city attorneys shall prosecute offenders against oleomargarine law.

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. An article of food or drink is deemed adulterated if any inferior or injurious substance has been added to it, if any valuable constituent has been removed, if it is an imitation of or sold as another article, if it is colored to conceal inferiority, if it is decomposed or unfit for food, if it is misbranded, etc. With the exception of mixtures, etc., known by distinctive names, labeled as mixtures, or containing matter unavoidably or necessarily added in preparation for commerce, such articles are prohibited. No conviction when defendant can prove written guaranty of purity from supplier.

The board of agriculture shall fix standards of foods, beverages, and condiments, and publish results of examinations made by the chemists of the department of agriculture. Upon evidence from the commissioner of agriculture, solicitors shall conduct prosecutions under pure-food law.

NORTH DAKOTA.

Assistant dairy and food commissioner. The commissioner of agriculture appoints a deputy known as the assistant dairy and food commissioner, who is familiar with the manufacture of dairy products; term, same as commissioner's; salary, $600 per year. One thousand dollars annually and the fines collected in prosecutions are appropriated for his work. Detailed reports are made biennially. He acts also as director of farmers' institutes.

Milk. Milk standard, 12 per cent solids, 3 per cent fat. Venders in cities or towns of more than 1,000 inhabitants must furnish certain information to the assistant commissioner and obtain license from him. *Cream.*—Cream shall contain at least 15 per cent fat. *Skimmed milk.*—Skimmed milk shall be sold for what it is. *Impure milk.*—The disposal or use in any human food of unhealthy, adulterated, etc., milk, or cream from same, is prohibited.

Butter and cheese. For the purpose of one act, butter and cheese are defined as the products usually known by those names and which are manufactured exclusively from milk or cream. Creameries shall brand each package of butter and cheese, showing quality of product, number of factory, etc. The brands are registered with the assistant commissioner. Managers of creameries and cheese factories shall make annual reports on blanks furnished for the purpose. *Skimmed-milk cheese.*—Cheese made from milk which has been skimmed shall be plainly marked, on itself and on the package, "Skimmed-milk cheese."

Imitation butter. Any article in imitation of pure yellow butter and not made from pure milk is prohibited; but oleomargarine, free from color to cause it to look like butter, and made in a distinct form and sold in such manner as will advise consumers of its real character, is permitted. Notice of its use in public eating places must be given to patrons. Imitations shall be distinctly marked and sales shall be accompanied by a printed card giving names of the ingredients. *Renovated and patent butters.*—Butter made from melted packing stock, etc., shall be plainly labeled "Renovated butter," and that made by any process by which casein of milk or other ingredients are made to take the place of pure butter fat shall be plainly marked "Patent butter."

Imitation cheese. Substitutes for pure cheese, including filled cheese, shall be plainly labeled so their character and quality will be shown. Sales shall be accompanied by a printed card giving names of ingredients.

Miscellaneous. Cows shall be well stabled and fed pure feed.

OHIO.

Dairy and food commissioner. State dairy and food commissioner is elected at the general elections; term of office, two years; salary, $2,000 per year. He shall give bond for $5,000. May appoint two assistant commissioners at salaries of $1,000 per year; also appoint and fix the compensation of experts, chemists, agents, etc., as are necessary. Detailed annual report shall be made to the governor. Authority extends to all foods and drugs. (Appropriation for 1900, $50,340.[1]

Milk. Milk standard, 12 per cent solids, 3 per cent fat; in May and June, 11½ per cent solids. *Skimmed milk.*—Skimmed milk shall not be sold as pure milk, but it may be used for making skimmed cheese: cans containing it shall be plainly marked "Skimmed milk." *Condensed milk.*—Condensed milk shall be made from pure fresh milk; the proportion of milk solids shall be equivalent to 12 per cent in crude milk, of which 25 per cent shall be fat; package containing same shall be plainly labeled with true name and brand, and name of manufacturer. *Adulterated milk.*—The sale of adulterated, skimmed, unclean, unhealthy, etc., milk, and that from sick cows, or its delivery to a factory, is prohibited.

Butter and cheese. Butter and cheese are defined as the products usually known by those names, and made wholly from pure milk or cream, with salt, and with or without harmless coloring matter, and, if cheese, with or without rennet and sage. False brands are prohibited. Keeping false account of milk delivered to a factory is prohibited. *Butter.*—Standard for butter, 80 per cent fat. *Cheese.*—Must contain at least 20 per cent fat. Registered brands with the words "Ohio State full cream cheese" are issued to factories for use on full milk cheese and their packages upon application to the dairy and food commissioner and payment of fee of $1. *Skimmed cheese.*—Cheese as above defined, and containing less than 20 per cent fat, shall be plainly marked, and have its package marked, "Skimmed cheese;" packages sold at retail shall be accompanied by a label similarly marked; exposed contents of a package shall be labeled as above with a placard, and a sign "Skimmed cheese sold here" shall be posted where it is sold; delivery wagons shall display similar signs; notice shall be given of its use in public eating places.

Imitation butter and cheese. With the exceptions noted below, any article in imitation of natural butter or cheese, and containing animal or vegetable oils not produced from milk, or acids, is prohibited. Any other substance not made wholly from pure milk or cream, salt, and harmless coloring matter, and appearing to be butter or cheese, may be sold only under its true name. Each roll or package shall be plainly marked with its name and the names of its ingredients, and the same shall be on a label delivered with each sale, in connection with which the use of such words as "butter," "dairy," etc., or false brands, are prohibited; information as to the substance shall be given at all retail sales; it shall not be packed so as to be concealed by a finer grade of butter; its use in State charitable and penal institutions is prohibited. Signs shall be used as described below. *Oleomargarine.*—Oleomargarine is defined as any substance not pure butter of not less than 80 per cent butter fat and made for use as butter. It is permitted if free from coloring matter or other ingredient to cause it to look like butter, and made in such form and sold in such manner as will advise the consumer of its real character. *Filled cheese.*—Any article in imitation of cheese and not made wholly of milk or cream, etc., and containing any fats, oils, etc., not produced from milk or cream, shall be plainly marked and have its package or the exposed contents of any package marked "Filled cheese;" each retail sale shall be accompanied by a label similarly marked; it shall not be sold as cheese. *Signs.*—The signs "Oleomargarine sold here" or "Filled cheese sold here" shall be displayed wherever these articles are sold, and signs and verbal information are required in public eating places where the articles are used; wagons delivering filled cheese shall display signs.

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[1] See footnote, page 81.

Miscellaneous. Milch cows shall not be kept in a cramped or unhealthy condition, nor fed unhealthy food, or food which produces unwholesome milk.

Pure food. Any article of food or drink is adulterated if any inferior or poisonous substance has been mixed with it; if any valuable ingredient has been removed; if it is an imitation of or sold under the name of another article; if it is decomposed, infected, or from a diseased animal; if it is colored to conceal inferiority, etc. Such articles are prohibited; but certain common mixtures are permitted if packages are labeled with names of ingredients, etc.

OKLAHOMA.

Milk. *Adulterated milk.*—Milk from a cow not in proper condition of health, or any milk adulterated by water or a deleterious substance, or colored, shall not be sold or delivered.

Butter. (No law.)

Cheese. (No law.)

Imitation butter. (No law.)

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. The adulteration of food or drink with fraudulent intent is a misdemeanor. Buyer shall be informed if provisions are diseased or unwholesome. Board of health shall destroy any impure article of food offered for sale.

OREGON.

Dairy and food commissioner. After June, 1900, the dairy and food commissioner, who shall be well qualified in dairy matters, will be chosen by the electors of the State; term of office, four years; salary, $1,000 per year; shall enforce the law, inspect creameries, and give dairy instruction; may appoint and fix compensation of one deputy in each county; reports to the legislature. Chemist of State agricultural college shall make analyses.

Milk. Milk standard, not more than 88 per cent water, nor less than 3 per cent fat, nor less than 8 per cent solids other than fat, nor less than 1.038 specific gravity after cream has been removed. *Impure milk.*—Milk from cows fed unwholesome feeds or near time of parturition is deemed impure. *Cream.*—Standard, 20 per cent fat. *Condensed milk.*—Standard, "12 per cent of milk solids in pure milk, 25 per cent of which shall be pure fat."

Butter and cheese. Manufacturers of more than 25 pounds of butter or cheese per week shall make detailed annual reports to the commissioner. *Butter.*—Butter standard, not more than 14 per cent water. *Process butter.*—Reworked or mixed butter shall be marked "Process butter," and not "Creamery butter." *Tub butter.*—Tub or packed butter, remolded into prints, etc., shall be marked "Tub butter," and not "Creamery butter." The use of boxes or brands of one creamery or dairy for selling the butter of another is prohibited. *Cheese.*—Standard, 40 per cent fat as compared with total solids.

Imitation butter and cheese. Sales of oleomargarine and all imitations of dairy products shall be recorded and records shall be open to the commissioner.

Miscellaneous. Milch cows shall be allowed 800 cubic feet of air space each in stables; when facing each other shall not be closer than 6 feet, unless separated by air-tight partitions at least 4 feet high. Stables shall be well ventilated and kept in a healthful condition.

Pure food. An article of food or drink is deemed adulterated if any inferior substance has been mixed with it, if any valuable constituent has been removed, if it is in imitation of or sold as another article, if it is colored to conceal inferiority, etc. Salt and annotto, or butter color in which annotto is the principal ingredient, are not adulterants of dairy products. Such articles shall not be sold unless plainly marked to show their true character, nor served in public eating places unless notice of their use is given.

PENNSYLVANIA.

Dairy and food commissioner. The dairy and food commissioner, who shall have practical experience in the manufacture of dairy products, is appointed by the governor; term of office, four years; salary, $2,500 per year. He shall have a clerk, appointed by the governor; salary, $1,500 per year. Authority extends to other foods. Commissioner shall make a detailed annual report. Moneys paid into the treasury under the provisions of the 1899 oleomargarine law constitute a special fund for enforcement of that law.

Milk. Milk standard in cities of the second and third class, 12½ per cent solids, 3 per cent fat, specific gravity at 60° F. between 1.029 and 1.033. In towns of over 1,000 population, vehicles from which milk is vended shall be marked with names of vendors and locality of production; and in cities of the second class dairies and milk depots shall be registered by the bureau of health. *Skimmed milk.*—Skimmed-milk standard in cities of the second and third class, 6 per cent cream by volume, 2½ per cent fat by weight, specific gravity at 60° F. between 1.032 and 1.037; milk from which any cream has been taken shall not be sold unless in a vessel plainly marked "Skimmed milk." *Adulterated milk.*—The sale of adulterated, impure, or unwholesome milk is a misdemeanor. The addition of water or ice to milk is an adulteration, and milk from animals fed on distillery waste or any substance in a state of putrefaction, or from sick or diseased cows, is declared to be impure and unwholesome. The sale of milk for human consumption which contains boracic acid salt, salicylic acid, or other drug is prohibited.

Councils of cities and boroughs may provide for milk inspection.

Butter. (No law.)

Cheese. All cheese is divided into five grades, and each cheese and its package shall be plainly branded with the address of the maker and the words

"Full cream" if it contains not less than 32 per cent of butter fat; "Three-fourths cream" if it contains not less than 24 per cent butter fat; "One-half cream" if it contains not less than 16 per cent butter fat; "One-fourth cream" if it contains not less than 8 per cent butter fat; and "Skimmed cheese" if it contains less than 8 per cent butter fat. Fancy cheese weighing less than five pounds, and pot cheese, are excepted.

Imitation butter. The manufacture or sale of any article not made from pure milk or cream and in imitation of pure yellow butter is prohibited; but oleomargarine, butterine, or similar substance is permitted if free from color or other ingredient to make it look like butter, and made in such form and sold in such manner as will advise the consumer of its real character, and if the manufacturer or dealer shall have a license. Every package or parcel shall be plainly labeled "Oleomargarine" or "Butterine," and signs obtained from the dairy commissioner shall be displayed where it is made or sold. Wagons of peddlers shall be plainly marked. License fees are as follows per year: Manufacturers, $1,000; wholesalers, $500; retailers, $100; restaurant keeper or hotel proprietor, $50, and boarding house keeper, $10; the different classes are defined. Imitation butter shall not be used in any State charitable or penal institution. *Renovated butter.*—Butter made from melted packing stock, etc., as "boiled" or "process" butter shall be plainly labeled "Renovated butter" before sold or offered for sale, whether in small or large packages.

Imitation cheese. Cheese not produced wholly from pure milk or cream is prohibited.

Miscellaneous. (No law.)

Pure food. An article of food or drink is deemed adulterated if any inferior or injurious substance has been mixed with it; if any valuable constituent has been removed; if it is in imitation of or sold as another article; if it is diseased, decomposed, infected; if it is colored to conceal inferiority, etc. With certain exceptions, which shall be labeled, such articles are prohibited.

RHODE ISLAND.

Milk. Milk standard, 12 per cent solids, 2½ per cent fat; shall be sold by wine measure; vessels to be sealed by the sealer of weights and measures. *Skimmed milk.*—Skimmed milk is that which has been skimmed, or is below the standard. It shall be sold only from cans plainly marked "Skimmed milk." *Adulterated milk.*—The sale or exchange of adulterated or diseased milk or that from diseased cattle or cows fed on distillery refuse, etc., is prohibited.

The mayor and aldermen of any city and the council of any town may elect and fix the compensation of milk inspectors. In Providence this is compulsory. Inspectors may appoint collectors of samples. All persons engaged in selling milk must register with the inspector and have their names on their wagons, etc. Names of persons convicted are published.

Butter. All butter tubs shall be marked with their weights and maker's initials.

Cheese. (No law.)

Imitation butter. Any article not made wholly from milk or cream, but containing any melted butter to take the place of cream, or animal oil or fat not the product of milk, shall be plainly marked "Oleomargarine," and a label similarly printed shall be delivered with all retail sales.

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. The authority of milk inspectors extends to other foods.

SOUTH CAROLINA.

Milk. Milk standard, 3 per cent fat, 8½ per cent other solids. *Skimmed milk.*—Skimmed milk is that below the standard. It and buttermilk may be sold under their own name. *Adulterated milk.*—The sale of unclean, diseased, adulterated, etc., milk, or its delivery for domestic use, or to be converted into any human food, is prohibited.

Butter. (No law.)

Cheese. (No law.)

Imitation butter and cheese. Imitation butter and cheese are defined as every article not produced from pure milk or cream, with or without salt, rennet, and harmless coloring matter, which is in semblance of and designed to be used as a substitute for butter or cheese. They shall not be colored to resemble butter or cheese. Original packages shall be marked "Substitute for butter," or "Substitute for cheese;" shall not be sold as genuine butter or cheese, nor used in hotels, etc., unless signs are displayed.

Statement of the chemist of the State college shall be accepted as evidence of analysis of imitation butter and cheese.

Miscellaneous. (No law.)

SOUTH DAKOTA.

Milk. *Adulterated milk.*—The sale of unwholesome, diseased, or adulterated milk as the pure article is prohibited.

Butter and cheese. Butter and cheese are defined as the products usually known by those names, and which are made wholly from milk or cream or both, with salt and rennet, and with or without coloring matter.

Imitation butter. Any article not made wholly from pure milk or cream, and in imitation of pure butter, is prohibited; but oleomargarine, colored pink, and made in such form and sold in such manner as will advise the consumer of its real character, is permitted; notice of its use in public eating places must be given.

Health officers, sheriffs, etc., shall institute complaints, etc.

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. Any article of food is deemed adulterated if any inferior or injurious substance has been added to it, if any valuable ingredient has been removed, if it is an imitation of or sold as another article, if it is colored to conceal inferiority, etc.; such an article shall not be offered for sale unless labeled "adulterated" and with its own common name and name of the manufacturer. No unwholesome food shall be sold without making its character known to the buyer.

TENNESSEE.

Milk. (No law.)

Butter. (No law.)

Cheese. (No law.)

Imitation butter. Any article which is in imitation of yellow butter and not made exclusively from pure milk or cream is prohibited; but oleomargarine, free from color or other ingredient to cause it to look like butter, and made in such form and sold in such manner as will advise the consumer of its true character, and other imitations if uncolored and labeled with their correct names, are permitted; wholesale packages shall be plainly labeled, and a label shall accompany retail sales.

Imitation cheese. Imitation cheese may be manufactured under its true name; each package and its contents shall be stamped with the correct name, and a label, similarly printed, shall be delivered with retail sales.

Miscellaneous. (No law.)

Pure food. Any article of food or drink is adulterated if inferior substances have been added to it; if any valuable constituent has been abstracted; if it is an imitation of or sold as another article; if it contains any poisonous substance; if it is decomposed or diseased or from an unhealthy animal, etc. With certain common exceptions, such articles and all misbranded articles are prohibited.

TEXAS.

Milk. (No law.)

Butter. (No law.)

Cheese. (No law.)

Imitation butter. (No law.)

Imitation cheese. (No law.)

Miscellaneous. Corporations may be formed for the purpose of establishing and carrying on the work of dairies and creamery companies.

UTAH.

Dairy and food commissioner. The dairy and food commissioner is appointed by the governor; term of office, two years; salary, $600; expenses limited to $300; authority extends to all foods and drinks; biennial reports are made to the governor. County attorneys shall give legal assistance.

Milk. *Skimmed milk.*—Skimmed milk includes all from which any cream has been removed. It shall contain not less than 9 per cent of solids not fat, and may be sold only from vessels plainly marked "Skimmed milk." *Adulterated milk.*—Milk which has been diluted or that taken from a cow in an unnatural condition, etc., shall not be sold or delivered. Preservatives shall not be used. Standard tests and lactometers may be used to determine adulteration.

Butter. Preservatives shall not be used.

Cheese. *Skim cheese.*—Cheese made from milk from which some fat has been removed shall be in size between 9 and 11 inches in diameter and not less than 9 inches high. Preservatives shall not be used.

Imitation butter. Any article not made wholly from unadulterated milk or cream, which is an imitation of pure yellow butter, is prohibited. But oleomargarine, free from color or other ingredient to cause it to look like butter, and made in such form and sold in such manner as will advise the consumer of its real character, and free from misleading marks, is permitted. It shall not be sold as butter. It shall be plainly marked "Oleomargarine" when exposed for sale, signs must be displayed where it is sold, and in public eating places guests must be notified of its use. Butter not made from pure milk shall not be used in State charitable or penal institutions.

Imitation cheese. Cheese made from skimmed milk to which foreign fats have been added is prohibited. Cheese not made from pure milk shall not be used in State charitable or penal institutions.

Miscellaneous. (No law.)

VERMONT.

Milk. Milk standards, 12½ per cent solids, 9¼ per cent solids not fat; in May and June, 12 per cent total solids. Standard measure is wine measure. Payment for milk at factories is to be based on milk testing 4 per cent fat. *Adulterated milk.*—The sale of adulterated or skim milk or milk below the standard, or its delivery to a factory, or the delivery of tainted milk to a factory, is prohibited. Result of analysis by the State Agricultural Experiment Station shall be deemed competent evidence in prosecutions.

Glassware used for testing milk to determine amount to be paid for it shall be examined for correctness and marked under the direction of the State Agricultural College; any person making such a test shall hold a certificate from the college.

Butter and cheese. Butter or cheese shall not be marked "Creamery," unless made in a creamery; marking "Private creamery" is permitted if name of maker is given.

Operators of factories shall not use any cream except with consent of owners.

Detailed monthly statements shall be given to patrons of creameries and cheese factories showing amount of milk delivered, test, and butter or cheese made therefrom, and payments shall be based on amounts of these products. Milk sold at creameries shall be tested to determine amount of butter thus disposed of. Monthly statements of milk received and butter produced shall be posted in creameries.

Imitation butter.[1] Any article made in imitation of or as a substitute for butter, and not made wholly of milk or cream, may be sold when plainly labeled "imitation butter," "oleomargine," or "butterine," as the case may be. Wrappers for retail packages shall be similarly marked. The word "dairy" or "creamery" or the name of any breed of dairy cattle on labels is prohibited.

The State's attorney is given special power for enforcing.

Imitation cheese.[1] Any article made in imitation of or as a substitute for cheese may be sold when plainly labelled "imitation cheese." Wrappers for retail packages shall be similarly marked.

The State's attorney is given special power for enforcing.

Miscellaneous. (No law.)

Pure food. A laboratory is conducted by the State board of health for the examination of water, milk, and foods, and the study of diseases.

VIRGINIA.

Milk. *Adulterated milk.*—The sale of adulterated, skimmed, tainted, etc., milk, or its delivery to any creamery or cheese factory, is prohibited.

Butter. Butter inspectors shall brand lots of butter offered for inspection according to quality.

Factory employees shall not use cream without consent of its owners.

Cheese. *Skimmed cheese.*—Skimmed cheese may be made from pure skimmed milk. Factory employees shall not use cream without consent of its owners.

Imitation butter. The manufacture or sale of any article made wholly or partly from any fat or oil not produced from unadulterated milk or cream, and which is in imitation of pure yellow butter, is prohibited; but oleomargarine, butterine, or kindred compound, made in such form and sold in such manner as will advise the consumer of its real character, and free from color or other ingredient to cause it to look like butter, is permitted. Signs, with the words "Imitation butter used here," shall be displayed in eating places, bakeries, etc., where the articles above named are used.

Imitation cheese. The manufacture or sale or use in public eating places of any article in imitation of and designed to take the place of pure cheese, and not made wholly from milk or cream, is prohibited.

Miscellaneous. (No law.)

Pure food. The board of agriculture may establish standards for foods and, assisted by experts of the department of agriculture, examine foods to protect against adulteration and misbranding; may prescribe how compounds shall be branded; may publish results of examinations; commonwealth's attorneys assist in prosecutions. An article of food is deemed adulterated if any inferior or injurious substance has been added to it or any valuable constituent has been removed from it so it will deceive the purchaser, if it is an imitation of or sold as another article, if it is colored to conceal inferiority, if it is labeled to mislead the purchaser, if it is diseased or decomposed, etc. With the exception of certain well-known or labeled articles, etc., no person shall knowingly manufacture or sell such articles of food.

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[1] See footnote, page 95.

WASHINGTON.

Dairy and food commissioner. Dairy and food commissioner is appointed by the governor; term of office, four years; salary, $1,500; must give bond for $5,000. He may appoint six deputies at $3 per day, but no one is to be employed at the cost of the State more than 30 days in a year; the services of chemists of State institutions are available; attorney-general and county prosecuting attorneys shall assist, but special counsel may be employed. Appropriation, $3,000 per year in the interest of dairying and $1,000 in the interest of pure food. A "State board of dairy and food commission" is constituted of the secretary of state, professor of agriculture at the agricultural college, and dairy commissioner; members receive no salary, but are allowed traveling expenses; they report to the governor biennially.

Milk. Milk standard, 3 per cent fat, 8 per cent solids not fat. *Cream.*—Cream shall contain at least 18 per cent fat. *Skimmed milk.*—Skimmed milk shall be sold only from cans plainly marked. *Adulterated milk.*—Adulterated, skimmed, diseased, impure, etc., milk is defined as any below the standard; or which has been altered in any way; or is from cows diseased, near the time of parturition, or poorly cared for, or fed unwholesome foods; or has been exposed to infection by disease germs; or has borax or salycylic acid added to it to prevent souring, etc. It shall not be sold nor delivered as pure milk.

Persons selling milk from stores or wagons shall annually procure license from commissioner—fee, $1 for each store or wagon.

Owners of dairies and milk venders shall annually report amount of business done on blanks furnished by the commissioner.

Cans used by milk purchasers shall have their capacity marked upon them.

Butter. Commissioner issues to manufacturers of creamery butter, and makes regulations for the use of, brands with suitable device and words "Washington Creamery Butter" and registered numbers of the factories, and these shall be used on wrapper and outside of every package, but not on any other than Washington creamery butter. Owners of creameries shall report annually on blanks furnished by the commissioner.

Cheese. Commissioner issues to cheese manufacturers, and makes regulations for the use of, stencils with words "Washington State Full Cream Cheese," and registered numbers of factories, and these shall be used only on full cream cheese (and packages for same) containing 30 per cent fat and made wholly from pure milk. *Skimmed cheese.*—Cheese containing from 15 to 30 per cent of butter fat shall be plainly marked "Skimmed cheese." The manufacture of cheese containing less than 15 per cent butter fat is prohibited. *Fancy cheese.*—Edam, Pineapple, Swiss, and other fancy cheese are not included in the above regulations. Owners of cheese factories shall report annually on blanks furnished by the commissioner.

Imitation butter. No article which is in imitation of pure yellow butter and is not made wholly from pure milk or cream, with or without harmless coloring matter, shall be manufactured, sold, or used in any public eating house, or eleemosynary, or penal institution, etc.; but oleomargarine, free from color or other ingredient to make it look like butter, and made in such form and sold in such manner as will advise the consumer of its real character, is permitted and may be used in public eating places when signs are displayed. *Renovated butter.*—Process butter shall be plainly marked "Renovated butter."

Imitation cheese. Any cheese not made wholly from pure milk or cream or skimmed milk, with salt, rennet, and harmless coloring matter, is prohibited.

Miscellaneous. (No law.)

Pure food. Any article of food or drink is deemed to be adulterated if any inferior or injurious substance has been added to it, if any valuable constituent has been removed, if it is an imitation of or sold as another article, if it is diseased or decomposed or (if milk) the product of a diseased animal, if it is colored to conceal inferiority, etc. With the exception of mixtures or compounds recognized as ordinary foods or parts of foods which shall be labeled with the names of their ingredients, and are not injurious to health, such articles are prohibited.

WEST VIRGINIA.

Milk. *Skimmed milk.*—Skimmed milk may be used in the manufacture of cheese.

Butter and cheese. Salt, rennet, and harmless coloring matter are permitted in the manufacture of butter and cheese.

Imitation butter and cheese. Any substance in semblance of butter or cheese, and not made wholly from pure milk or cream, and packages containing such substances, shall be plainly marked; printed statements explaining the character of the substance must be given to consumers. *Oleomargarine.*—Oleomargarine and artificial and adulterated butter shall be colored pink.

Miscellaneous. (No law.)

Pure food. The adulteration of any article of food or drink is a misdemeanor.

WISCONSIN.

Dairy and food commissioner. Dairy and food commissioner is appointed by the governor; term of office, two years; salary, $2,500 per annum. He may appoint as assistant commissioner an expert on dairy products at a salary of $1,600, a chemist at $1,800, and a clerk at $900 per annum; also an inspecting agent at $3 per day. Authority extends to all foods, drinks, and drugs. County district attorneys shall assist in prosecutions and special counsel may be employed. Laboratory for analytical work is provided. Commissioner shall make biennial reports; governor may authorize him to assist at farmers' institutes, etc.

Milk. Milk standard, 3 per cent fat and pure. Milk for city trade must be produced from cows fed wholesome food and kept in clean stables; it must be handled in clean utensils. *Adulterated milk.*—The sale or delivery of milk or cream that contains any foreign substance as color or preservative (viscogen may be used if milk is labeled), or the product of cows that are diseased or improperly cared for or fed slops, is prohibited, and the sale or delivery of adulterated or unwholesome milk, or milk from cows near the time of parturition, as the pure article, is prohibited. Standard tests may be made for proving adulteration.

Butter. Use of boracic and salycylic acids and injurious antiseptics in the manufacture of butter are prohibited.

An account of daily operations must be kept in creameries. Milk or cream must not be used at factories for benefit of any person to whom it does not belong.

Cheese. Unlawful to use false brands on cheese. Stencil bearing suitable device and words "Wisconsin full cream cheese" and registered number of factory is issued by commissioner to any factory applying for use on bandages and packages of full cream cheese under regulations prescribed by the commissioner. *Skimmed cheese.*—Skimmed cheese must be 10 inches in diameter and 9 inches high.

Account of daily operations must be kept in cheese factories. Milk or cream shall not be used at factories for benefit of any person to whom it does not belong.

Imitation butter. Any article made partly or wholly out of any fat or oil, etc., not from pure milk or cream, and in imitation of yellow butter, is prohibited; but oleomargarine, free from color or other ingredient to make it look like butter, and made in such form and sold in such manner as will advise the consumer of its real character, is permitted. It shall not be sold as butter. All packages exposed for sale must be plainly marked "Oleomargarine;" signs must be displayed in selling places and on wagons. Hotels, etc., using it must notify guests. Use not permitted in charitable or penal institutions. *Renovated butter.*—Every package or parcel of butter which has been melted, renovated, and prepared in imitation of creamery butter shall be plainly marked "Renovated butter."

Imitation cheese. Manufacture or sale or use in charitable or penal institutions of cheese made from skimmed milk to which fat foreign to milk has been added is prohibited.

Miscellaneous. (No law.)

Pure food. Any article of food or drink shall be deemed adulterated if any injurious or inferior substance has been added to it; if any valuable ingredient has been removed; if it is an imitation of or sold as another article; if it is diseased, infected, decomposed; if it is colored to conceal inferiority, etc. With the exception of certain ordinary foods, which shall be plainly labeled, such articles are prohibited.

WYOMING.

Milk. Milk is exempted from the list of articles that can not be sold on Sundays.

Butter. (No law.)

Cheese. (No law.)

Imitation butter. (No law.)

Imitation cheese. (No law.)

Miscellaneous. (No law.)

Pure food. The adulteration of any article of food or drink with fraudulent intent or sale of same or knowingly selling any unwholesome article of food or drink is a misdemeanor.

CANADA.

Milk. *Deteriorated milk.*—Deteriorated milk, meaning that which is adulterated or partly skimmed, or milk which is tainted or from a diseased cow, shall not be sold to a cheese, butter, or condensed milk factory. Competent person may use lactometer or cream gauge or other proper test for inferior milk.

Butter and cheese. Every package of butter and cheese, and cheese itself, for export, shall be plainly marked "Canadian," "Canadien," or "Canada," and the mutilation of these marks, or their use on articles not made in Canada, is prohibited. No package containing butter or cheese shall be marked with the name of any month except the month in which the product was made. Butter or cheese made in a foreign country before being offered for sale must be branded with the name of the country where produced. *Skim cheese.*—All cheese made from skimmed milk shall be marked "Skim-milk cheese," and packages containing same shall be similarly marked. It is unlawful to remove or deface these marks.

Any person engaged in the manufacture of butter or cheese may register with the minister of agriculture, upon giving certain information, and have a number for exclusive use on his products allotted to his factory or creamery.

Imitation butter. The manufacture of oleomargarine, or other substitute for butter, from any animal substance except milk, or the sale of same, is prohibited.

Imitation cheese. Cheese made from skimmed milk to which foreign fat has been added is prohibited.

Miscellaneous. The governor in council may make such regulations as he considers necessary to enforce the law regarding dairy products.

FULL TEXTS OF DAIRY LAWS.

The dairy laws which were printed in 1898 in the Fourteenth Annual Report of the Bureau of Animal Industry and are now in force, are referred to below by title. Laws enacted since the report named was issued, and a few which were inadvertently omitted from that report, are given in full.

UNITED STATES.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 556–563, for—

Forty-ninth Congress, Session I, 1886, chapter 840[1] (sections 1-21).—An act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine. (Approved August 2, 1886.)

Fifty-first Congress, Session I, 1890, chapter 1244, sections 41 and 53.—An act to reduce the revenue and equalize duties on imports, and for other purposes. (Approved October 1, 1890.)

Fifty-fourth Congress, Session I, 1896, chapter 337 (sections 1-19).—An act defining cheese, and also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of "filled cheese." (Approved June 6, 1896.)

Fifty-fifth Congress, Session I, chapter 11, schedule G, 236–239.—An act to provide revenue for the Government and to encourage the industries of the United States. (Approved July 24, 1897.)

ALABAMA.

See Fourteenth Annual Report of the Bureau of Animal Industry, page 563, for—

Acts of 1894–95, No. 408 (sections 1 and 2).—An act to prevent deception in the manufacture and sale of imitation butter. (Approved February 18, 1895.)

ARIZONA.

(No dairy laws.)

ARKANSAS.

See Fourteenth Annual Report of the Bureau of Animal Industry, page 564, for—

Acts and resolutions of 1885, act 127 (sections 1–6).—An act to prevent deception in the sale and use of butter. (Approved April 2, 1885.)

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[1] A bill providing for reducing the tax on uncolored oleomargarine and increasing the tax on the article when colored to resemble butter, was before the last Congress and will be given early consideration in the next.

CALIFORNIA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 564–568, for—

Statutes of 1893, chapter 137[1] (section 1).—An act entitled an act to prevent the sale of short-weight rolls of butter. (Approved March 11, 1893.)

Statutes of 1897, chapter 76 (sections 1-7).—An act defining the different grades of cheese and for branding the same manufactured in the State of California. (Approved March 4, 1897.)

Statutes of 1897, chapter 75 (sections 1-19).—An act to prevent deception in the manufacture and sale of butter and cheese, to secure its enforcement, and to appropriate money therefor. (Approved March 4, 1897.)

Recently enacted:

STATUTES OF 1899, CHAPTER 25.

AN ACT to prevent deception in the sale of process or renovated butter. (Became a law, under constitutional provision, without governor's approval, February 23, 1899.)

Process or renovated butter to be labeled.

SECTION 1. No person or persons, firms or corporation, shall sell, or offer for sale, or have in his or their possession for sale, any butter manufactured by boiling, melting, deodorizing, or renovating, which is the product of stale, rancid, or decomposed butter, or by any other process whereby stale, rancid, or decomposed butter is manufactured to resemble or appear like creamery or dairy butter, unless the same is plainly stenciled or branded upon each and every package, barrel, firkin, tub, pail, square, or roll, in letters not less than one half inch in length, "process butter," or "renovated butter," in such a manner as the purchaser will be advised of the real character of such "process" or "renovated" butter.

SEC. 2. Whoever shall violate any of the provisions or sections of this act shall be deemed guilty of a misdemeanor.

District attorney to prosecute.

SEC. 3. It shall be the duty of the district attorney of each and every county of this State, upon application, to attend to the prosecution in the name of the State of any action brought for the violation of any of the provisions of this act within his district.

State dairy bureau to enforce.

SEC. 4. The State dairy bureau, by its agent and assistant agents, is hereby authorized and directed to enforce all of the provisions of this act. All fines and penalties for the violation of this act shall be paid to the agent or assistant agents of the State dairy bureau, and by said bureau paid to the State treasurer.

Repealing clause.

SEC. 5. All acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

In effect.

SEC. 6. This act shall take effect on and after its passage.

STATUTES OF 1899, CHAPTER 136.[2]

AN ACT to provide for the inspection of dairies, factories of dairy products, and of dairy products as to their sanitary condition, and as to the health of stock; to prevent the sale of milk, and the products of milk drawn from diseased animals; to prevent the spread of infectious and contagious diseases common to stock, and to appropriate money therefor. (Approved March 22, 1899.)

Sale of impure or diseased milk forbidden.

SECTION 1. No person or persons, firms or corporation, shall sell or offer for sale, or have in his or their possession for sale, any impure or unwholesome milk, or any article of food manufactured therefrom, or of any cream from the same, or milk drawn from cows, either fifteen days before or five days following parturition, or from cows fed on unwholesome food, or from cows affected with any disease of live stock, contagious, infectious, or otherwise capable of producing such pathological changes as will cause the products from said animals to become unwholesome for food.

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[1] This act is said to be obsolete and violations of it disregarded.

[2] The principal difficulty in the way of the enforcement of this law is that a formal complaint must be made before the bureau has authority to act, according to opinion of attorney-general.

Dairy bureau to make inspections.

Cattle, horses, and hogs to be inspected.

SEC. 2. It shall be the duty of the State dairy bureau, by its general agent and assistant agents, from time to time, as may be required, upon complaint made to it of the existence of any disease among dairy stock, or of unsanitary conditions, as mentioned and referred to in this act, to inspect all the dairies and creameries in the state so complained of, and to carefully investigate the sanitary conditions of the same. Said bureau, by its agents and assistant agents, shall at the same time inspect all cattle, horses, and hogs, belonging, in use by, or appurtenant to such dairies and creameries, for infectious and contagious diseases, such as are enumerated in section one of this act; and after such inspection, if said agent or assistant agent believes, or has reason to believe, that any contagious or infectious disease exists among the stock inspected, he shall immediately notify the State veterinarian of the same, setting forth the facts of the case, and he shall forthwith act upon such report.

Appointment of assistant agents.

SEC. 3. The State dairy bureau shall, and they are hereby directed to appoint, from time to time, as many assistant agents, not exceeding twenty, as in their judgment may be required to carry out the provisions of this act, and to fix their compensation, not to exceed four dollars per day while actually employed, exclusive of their actual and necessary expenses. Whenever competent assistant agents can be found in counties or districts where such inspection is to be made, the State dairy bureau, by its general agent, shall appoint an assistant agent as inspector, who is not an owner of nor interested in any dairy, subject to the approval of the bureau, and such appointment shall be entered on the minutes of the bureau; *provided*, that such assistant agent shall have had practical experience in the manufacture of dairy products and the care and handling of stock.

Monthly reports from employees.

SEC. 4. All persons employed by the bureau to carry out the provisions of this act shall render, under oath, to the State dairy bureau, on or before the fifth day of each and every month, an itemized statement of the number of days they were actually employed during the preceding month; also, an itemized statement of their actual expenses, with receipted vouchers attached thereto, for all sums exceeding one dollar, excepting railroad fares.

Diseased animals to be slaughtered.

SEC. 5. Whenever in the judgment of the State veterinarian it shall for the purposes of this act be necessary to slaughter any animal or animals reported to him by said agent or assistant agent, he shall certify his reasons therefor to the agent ordering such inspection. The agent or assistant agent shall notify the owner or owners, or the person or persons in charge of the animal or animals, of the decision of said State veterinary surgeon, and shall order the animal or animals specified in the veterinary surgeon's certificate to be slaughtered immediately. Any animal or animals so slaughtered shall not be sold or removed, but shall be destroyed at the expense of the owner or owners, or the person or persons in charge of such animal or animals, under the direction and supervision of the agent or assistant agent ordering the animal or animals slaughtered, as may be specified by the State veterinarian.

Agents to indicate necessary improvements.

SEC. 6. Whenever the agent or assistant agents of the bureau inspects any dairy, creamery, or any other place where milk is produced, or where products are manufactured from the same, including barns, corrals, hog yards, and places used for stock purposes, and utensils used in dairies and creameries, and finds the same not in good sanitary condition, he shall direct in writing such changes to be made as will put the same in good sanitary condition. Such written directions shall be served on the owner or owners, or upon the person or persons having charge of the premises, giving the parties so notified thirty days to make such changes as directed. If such changes are not made within thirty days, the person or persons refusing or neglecting to make such changes as directed shall be deemed guilty of a misdemeanor, and upon conviction shall be punished as hereinafter prescribed.

Suppression of contagious diseases.

SEC. 7. Whenever any infectious or contagious disease affecting dairy stock shall be brought into or break out in this State, the State dairy bureau, by its agent and assistant agents, shall take prompt measures to suppress the same, and to prevent such disease from spreading, and for that purpose shall immediately notify the State veterinarian, and he shall forthwith inspect the matters so reported and act thereon.

Authority to inspect stock.

SEC. 8. The agent or assistant agents shall also have the power to require each and every person, firm or corporation, having any stock in his or their possession, or under his or their control, to drive the same into corrals or small inclosures, for the purpose of inspection. Said agent shall give at least twenty-four hours' notice to the parties, of the time he requires such stock to be corralled; *provided*, that where it is impracticable to corral stock on large stock ranges, the owner or the person or persons having control of the same shall go with the agent or send some person to point out the stock to be inspected.

District attorney to prosecute. SEC. 9. It shall be the duty of the district attorney of each and every county of this State, upon application of the agent or assistant agents of the State dairy bureau, to attend to the prosecution, in the name of the State, of any action brought for the violation of any of the provisions of this act, within his district.

Violation a misdemeanor. SEC. 10. Any person or persons, firms or corporations, refusing or neglecting to comply with or conform to the provisions of this act, when required to do so by the agent or assistant agents of the State dairy bureau, or who shall in any manner interfere with them in the performance of their duties under this act, shall be guilty of a misdemeanor. Whoever shall violate any of the provisions or sections of this act shall be guilty of a misdemeanor. **Disposition of fines.** All fines collected under the provisions of this act shall be paid to the agent of the State dairy bureau, and by said bureau paid into the State treasury.

Annual report to contain statistical matter. SEC. 11. For the purpose of obtaining accurate information regarding the dairy industries of the State, the dairy bureau shall annually require in writing from each owner or manager of a dairy, owning or controlling any dairy stock exceeding one dozen cows in number, a report showing location of dairy, number and breed of all dairy stock in use or appurtenant thereto, together with such other pertinent information as said bureau may require. Information thus obtained shall be embraced in the annual report of the dairy bureau.

State dairy bureau to enforce. SEC. 12. It shall be the duty of the State dairy bureau now provided by law, by its general agent, to enforce the provisions of this act. **Salary of agent.** Such agent shall receive an additional salary of fifty dollars per month, payable out of the money appropriated for the enforcement of this act.

Appropriation. SEC. 13. There is hereby appropriated for the use of the State dairy bureau, in enforcing and carrying out the provisions of this act, out of any money in the State treasury not otherwise appropriated, the sum of one thousand dollars ($1,000) for the remainder of the fiftieth fiscal year; three thousand seven hundred and fifty dollars ($3,750) for the first six months of the fifty-first fiscal year; three thousand seven hundred and fifty dollars ($3,750) for the last six months of the fifty-first fiscal year; and five thousand dollars ($5,000) for the fifty-second fiscal year.

Disbursements. SEC. 14. All salaries, fees, costs, and expenses shall be drawn from the moneys so appropriated, and the State controller shall draw his warrant on the State treasury in favor of the person or persons entitled to the same; *provided*, that the State board of examiners are hereby specially prohibited from granting or allowing any deficiency to the State dairy bureau for the purposes of this act; *and provided further*, that in no event shall there be more agents or assistant agents employed, or expenses incurred under this act than the appropriations herein made will pay for the respective periods for which they are made.

In effect. SEC. 15. This act shall take effect immediately.

COLORADO.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 568–570, for:

Laws of 1895, chapter 19 (sections 1–18).[1]—An act to create the office of State dairy commissioner and to define his duties; and to regulate the manufacture and sale of all products of the dairy and all imitations thereof; and to provide the penalty for violations thereof; and making appropriations therefor; and to repeal an act entitled "An act to regulate the manufacture and sale of oleomargarine, creating the office of State dairy commissioner and defining his duties, and making appropriation therefor," approved April 12, 1893, and all acts and parts of acts inconsistent with the provisions of this act. (Approved April 1, 1895.)

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[1] Section 2 of this act provides for the employment of a practical chemist, but no appropriation is made for paying for such services, and private donations have to be depended upon.

CONNECTICUT.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 570–574, for:

General statutes, revision of 1887, sections 2614–2619 and 2658–2664.[1]—Concerning imitation butter, appointment of dairy commissioner, and impure milk.

Public Acts 1897, chapter 145 (sections 1–3).—An act concerning the selling of tub butter. (Approved May 5, 1897.)

Public Acts 1895, chapter 235 (sections 1–10).—An act regulating the manufacture and sale of food products. (Approved June 26, 1895.) [See amendment following:]

Sections recently amended:

PUBLIC ACTS OF 1895, Chapter 235

Connecticut Agricultural Experiment Station to make analyses.

Powers of dairy commissioner.

Food standards.

SEC. 4. (As amended by section 1, chapter 22 of Public Acts of 1899.) The Connecticut Agricultural Experiment Station shall make analyses of food products on sale in Connecticut, or kept in Connecticut for export, to be sold without the State, suspected of being adulterated. Samples of food products for analysis shall be taken by the duly authorized agents of the station, or by the dairy commissioner or his deputy, at such times and places and to such an extent as in the judgment of the officers of said experiment station and of the dairy commissioner shall seem expedient. The dairy commissioner or his deputy shall have full access at all reasonable hours to any place wherein it is suspected that there is kept for sale or for export, as above specified, any article of food adulterated with any deleterious or foreign ingredient or ingredients, and said dairy commissioner or his deputy, upon tendering the market price of such article, may take from any person, firm, or corporation, samples of the same. The said experiment station may adopt or fix standards of purity, quality, or strength, when such standards are not specified by law.

Commissioner to be notified of adulteration.

SEC. 5. (As amended by section 1, chapter 22 of Public Acts of 1899.) Whenever said experiment station shall find by its analysis that adulterated food products have been on sale in the State, or kept in the State for export, for sale without the State, it shall forthwith transmit the facts so found to the dairy commissioner, who shall make complaint to the proper prosecuting officer, to the end that violators of the law relating to the adulteration of food products shall be prosecuted.

DELAWARE.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 574–576, for:

Laws of 1887, chapter 231 (sections 1–4).—An act for the protection of the public health and to prevent adulteration of dairy products and fraud in the sale thereof. (Passed April 15, 1887.)

Laws of 1895, chapter 209 (sections 1–5).—An act to prevent deception in the manufacture and sale of imitation butter. (Passed May 8, 1895.)

DISTRICT OF COLUMBIA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 576–581, for:

Fifty-third Congress, Session III, chapter 164 (sections 1–15).—An act to regulate the sale of milk in the District of Columbia, and for other purposes. (Approved March 2, 1895.)[2]

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[1] $1,000 is appropriated for the expenses of the office of the dairy commissioner.
[2] The health officer's regulations in force under this act are dated July 31, 1897.

Forty-fifth Congress, Session III, chapter 22 (sections 1-3).—An act for the protection of dairymen, and to prevent deception in sales of butter and cheese in the District of Columbia. (Approved January 25, 1879.)

Fifty-fifth Congress, Session II, chapter 25 (sections 1-10).—An act relating to the adulteration of foods and drugs in the District of Columbia. (Approved February 17, 1898.)

FLORIDA.

[The following Revised Statutes include the dairy law published in the Fourteenth Annual Report of the Bureau of Animal Industry (page 581), and other sections which might apply to dairy products:]

Selling diseased provisions, whether for meat or drink; penalty.

SEC. 2659. Whoever knowingly sells any kinds of diseased, corrupted or unwholesome provisions, whether for meat or drink, without making the same fully known to the buyer, shall be punished by imprisonment not exceeding six months, or by fine not exceeding two hundred dollars.

Adulteration of any substance intended for food; penalty.

SEC. 2660. Whoever fraudulently adulterates, for the purpose of sale, bread or any other substance intended for food, with any substance injurious to health, shall be punished by imprisonment not exceeding one year, or by fine not exceeding three hundred dollars; and the articles so adulterated shall be forfeited and destroyed under the direction of the court.

Sale of spurious preparations as butter prohibited.

SEC. 2662. Whoever knowingly and willfully sells or causes to be sold as butter any spurious preparation purporting to be butter, whether known as oleomargarine, or by any other name, shall be punished by imprisonment not exceeding thirty days, or by fine not exceeding one hundred dollars.

Use in hotels, etc., must be made known.

SEC. 2663. Any keeper of any hotel or boarding house who shall knowingly and willfully, without giving notice to guests at the table, supply oleomargarine or other spurious preparation purporting to be butter, for the use of guests, shall be subject to the same penalty.

GEORGIA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 581–583, for—

Acts of 1895, part 1, title 7, No. 207 (sections 1-14).—An act to regulate the sale of milk, butter, and cheese, and to prescribe penalties for the unlawful sale or offering for sale of any watered or adulterated or unwholesome milk, and imitations or adulterations of butter and cheese. (Approved December 16, 1895.)

IDAHO.

See Fourteenth Annual Report of the Bureau of Animal Industry, page 583, for—

General Laws, 1884-85, page 61 (sections 1-2).—An act to prevent the sale of oleomargarine, butterine, mixtures imitating or adulterated butter. (Approved January 27, 1885.)

Revised Statutes of 1897, section 6918.—Concerning adulterated foods, etc.

ILLINOIS.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 583–588, for—

Laws of 1879, page 111 (sections 1-7) (=Hurd's Revised Statutes, chapter 38, sections 9-9e).—An act to regulate the sale of milk and to provide penalties for the adulteration thereof. (Approved May 29, 1879.)

Laws of 1883, page 54 (sections 1-4) (=Revised Statutes, chapter 5, sections 29-32).—An act to require operators of butter and cheese factories on the cooperative plan to give bonds, and to prescribe penalties for the violation thereof. (Approved June 18, 1883.)

Laws of 1879, page 11 (sections 1-3) (=Revised Statutes, chapter 38, sections 39a-39c).—An act to prevent frauds in the manufacture and sale of butter and cheese. (Approved May 31, 1879.)

Laws of 1881, page 74 (sections 1 and 2) (=Revised Statutes, chapter 38, sections 9f, 9g).—An act to prevent the adulteration of butter and cheese, or the sale or disposal of the same, or the manufacture or sale of any article as a substitute for butter or cheese, or any article to be used as butter and cheese. (Approved June 1, 1881.)

Laws of 1881, page 75 (sections 1, 3-8) (=Revised Statutes, chapter 38, sections 9h-9o).—An act to prevent and punish the adulteration of articles of food, drink, and medicine, and the sale thereof when adulterated. (Approved June 1, 1881.)

Laws of 1897, page 3 (sections 1-11) (=Revised Statutes, chapter 38, sections 39d-39n).—An act to regulate the manufacture and sale of substitutes for butter. (Approved June 14, 1897.)

Laws of 1885, page 207 (sections 1 and 3) (=Revised Statutes, chapter 38, sections 104a-104c).—An act to protect the public from imposition in relation to canned or preserved food. (Approved June 27, 1885.)

Additional laws are as follows:

LAWS OF 1897, page 268.

AN ACT to fix the standard of analysis of milk. (Approved June 7, 1897.)

Milk standard. That the standard of analysis for milk in this State as to ingredients and proportions shall be water, eighty-eight per centum, milk solids, twelve per centum, and said milk solids shall contain not less than three per centum of butter fat.

When contracts are made for milk purchased within this State for delivery within or without this State no other standard shall be used except by special contract in writing.

LAWS OF 1899, page 368.

AN ACT to provide for the appointment of a State Food Commissioner and to define his powers and duties and fix his compensation, and to prohibit and prevent adulteration, fraud, and deception in the manufacture and sale of articles of food, and to repeal certain acts or parts of acts herein named. (Approved April 24, 1899.)

Food commissioner; term, salary. SECTION 1. That the office of State Food Commissioner for the State of Illinois is hereby created. Within thirty days after this act shall take effect such commissioner shall be appointed by the Governor, by and with the advice and consent of the Senate, and his term of office shall be for two (2) years from the date of his appointment and until his successor is appointed and qualified. Thereafter the term of office of the commissioner shall be for four years and until his successor is qualified. The salary of the commissioner shall be twenty-five hundred dollars ($2,500) per annum an d his necessary and actual expenses in the discharge of his official duties

Assistant commissioners. SEC. 2. Such commissioner may, with the advice and consent of the Governor, appoint two assistant commissioners, each of acknowledged standing, ability and integrity, one of whom shall be an expert in the matter of dairy products, and the other of whom shall be a practical and analytical chemist, who shall be known as the State analyst. The salaries **Salaries.** of such assistants shall not exceed eighteen hundred dollars ($1,800) each per annum and their necessary and actual expenses incurred in the discharge of their official duties. In case of the absence or inability of the State analyst to perform all the duties of his office, the commissioner may appoint some competent person to assist in the same temporarily.

Appointment of inspectors. SEC. 3. The food commissioner shall have authority to appoint necessary inspectors not exceeding six in number to assist in the work of the food commissioner, at such times and for such periods of time as may be required in the enforcement of the dairy and food laws of the State. Such inspectors shall have the same right of access to places to be inspected as the commissioner. The compensation of such inspectors shall be three dollars ($3.00) per day for each day of actual service, and their necessary and actual expenses when so employed.

Duty of commissioner. SEC. 4. It shall be the duty of the commissioner to enforce all laws that now exist or that may hereafter be enacted in this State regarding the production, manufacture, or sale of dairy products, or the adulteration of any article of food, and personally or by his assistants to inspect any article of food made or offered for sale within this State, which he may, through himself or his assistants, suspect or have reason to believe to be impure, unhealthful, adulterated, or counterfeit, and to prosecute, or cause to be prosecuted, any person or persons, firm or firms, corporation or corporations, engaged in the manufacture or sale of any adulterated or counterfeit article or articles of food contrary to the laws of this State.

Analysis of suspected articles. SEC. 5. It shall be the duty of the food commissioner to carefully inquire into the quality of the dairy and food products, and the several articles which are foods or the necessary constituents of food which are manufactured for sale or sold or exposed or offered for sale in this State, and he may in a lawful manner procure samples of the same, and direct the State analyst to make due and careful examination of the same and report to the commissioner the results of the analysis of all or any such food or dairy products as are adulterated, impure or unwholesome, in contravention of the laws of this State, and it shall be the duty of the commissioner to make complaint against the manufacturer or vendor thereof in the proper county, and furnish the prosecuting attorney with the evidence thereon and thereof to obtain a conviction for the offense charged. **Powers of food commissioner.** The food commissioner or his assistants, or any person by him duly appointed for that purpose, shall have power in the performance of their duties to enter any dairy, creamery, cheese factory, store, saleroom, warehouse (except bonded warehouses for the storage of distilled spirits), where goods are stored or exposed for sale, or place where they have reason to believe food is stored or offered for sale, and open any cask, tub, jar, bottle, or package containing or supposed to contain any article of food, and examine or cause to be examined the contents thereof, and take therefrom samples for analysis. **Taking samples.** The person making such inspection shall take such sample of such article or product in the presence of at least one witness, and he shall, in the presence of such witness, mark or seal such sample and shall tender, at the time of taking, to the manufacturer or vendor of such product, or to the person having the custody of the same, the value thereof, but if the person from whom such sample is taken shall request him to do so, he shall at the same time, and in the presence of the person from whom such property is taken, securely seal up two samples of the article seized or taken, the one of which shall be for examination or analysis under the direction of the commissioner, and the other of which shall be delivered to the person from whom the article was taken. **Penalty for hindrance.** Any person who shall obstruct the commissioner or any of his assistants by refusing to allow him entrance to any place which he desires to enter in the discharge of his official duty, or refuse to deliver to him a sample of any article of food made, sold, offered or exposed for sale by such person, when the same is requested, and when the value thereof is tendered, shall be guilty of a misdemeanor, punishable by a fine of not exceeding fifty (50) dollars for the first offense, and not exceeding five hundred (500) dollars or less than fifty dollars ($50) for each subsequent offense.

State's attorneys to assist. SEC. 6. It shall be the duty of the State's attorney in any county of the State, when called upon by the commissioner or any of his assistants, to render any legal assistance in his power to execute the laws and to prosecute cases arising under provisions of this act.

State board of health to furnish samples. SEC. 7. The State board of health may submit to the commissioner or to any of his assistants samples of food or drink for examination or analysis, and shall receive special reports showing the result of such examination or analysis.

Certificates of analysis forbidden. SEC. 8. It shall be unlawful for the State analyst, while he holds his office, to furnish to any individual, firm or corporation any certificate as to the purity or excellence of any article manufactured or sold by them to be used as food or in the preparation of food.

Payment of salaries and expenses. SEC. 9. The salary of the commissioner shall be paid from the fund appropriated for the payment of the salaries of State officers, and his assistants shall be paid out of the State treasury from the same fund and in the same manner as the salaries of other employes of the State are paid, and their official expenses shall be paid at the end of each calendar month upon bills duly itemized and approved by the Governor, and the amount necessary to pay such salaries and expenses is hereby appropriated.

Chemical laboratory appropriation.

SEC. 10. The commissioner may, under the direction of the Governor, fit up a laboratory with sufficient apparatus for making the analysis contemplated in this act, and for such purpose the sum of fifteen hundred dollars ($1,500), or so much thereof as may be necessary, is hereby appropriated; and for the purpose of providing materials, and for necessary expenses connected with the making of such analysis, there is also hereby appropriated so much money as may be necessary, not exceeding six hundred dollars ($600) annually. The appropriation provided for in this section shall be drawn from the State treasury upon certified bills approved by the Governor.

Annual report of commissioner.

Monthly bulletin.

State printer.

SEC. 11. The commissioner shall make an annual report to the Governor on or before the first day of January in each year, which shall be printed and published. Such report shall cover the doings of his office for the preceding year and shall show, among other things, the number of factories, creameries and other places inspected, and by whom; the number of specimens of food articles analyzed and the State analyst's report upon each one when the analysis indicates the same to be contrary to law; the number of complaints entered against persons for violation of the laws relative to the adulteration of food; the number of convictions had and the amount of fines imposed therefor, together with such recommendations relative to the statutes in force as his experience may justify. The commissioner may also prepare, print and distribute [to] the newspapers of the State, and to such persons as may be interested, or may apply therefor, a monthly bulletin containing the results of inspections, the results of analysis made by the State analyst of articles of food offered by [for] sale contrary to law, with proper explanation of the same, and such other information as may come to him in his official capacity relating to the adulteration of food and drink products and of dairy products, so far as he may deem the same of benefit and advantage to the public; also a brief summary of all the work done during the month by the commissioner and his assistants in the enforcement of the laws of the State, but not more than ten thousand copies of each of such monthly bulletins shall be printed: *Provided*, the necessary printing shall be done by the State printer, and all expenses for stationery and printing shall be audited, and paid from the same fund and in the same manner as other State printing and stationery.

Fines to State treasury.

All fines, penalties and costs recovered for violations of this act and other acts now enacted or hereafter to be enacted prohibiting or regulating the adulteration of foods, shall be paid into the State treasury to the credit of the general fund of the State.

Manufacture or sale of adulterated food.

SEC. 12. No person shall, within this State, manufacture for sale, have in his possession with intent to sell, offer for sale, or sell, any article of food which is adulterated within the meaning of this act.

Food defined.

SEC. 13. The term "food," as used herein, shall include all articles, whether simple, mixed or compound, used for food, candy, drink or condiment by man or domestic animals.

Adulteration defined.

SEC. 14. An article shall be deemed to be adulterated within the meaning of this act:[1] *First*—If any substance or substances has or have been mixed with it so as to depreciate, lower or injuriously affect its quality, strength, or purity. *Second*—If any inferior or cheaper substance or substances has or have been substituted wholly or in part for the article. *Third*—If any valuable necessary constituent or ingredient has been wholly or in part abstracted from it. *Fourth*—If it be an imitation of and sold under the name of another article. *Fifth*—If it is mixed, colored, coated, polished or powdered, whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is. *Sixth*—If it contains any added substance or ingredient which is poisonous or injurious to health. *Seventh*—If it consists wholly or in part of a decomposed, putrid, infected, tainted or rotten animal or vegetable substance or article, whether manufactured or not, or if it is the product of a diseased animal, or if of an animal that has died otherwise than by slaughter: *Provided*, that an article of food which does not contain any ingedient injurious to health, and in the case of mixtures or compounds, which may be now, or from time to time hereafter, known as articles of food under their own distinctive names, or which shall be labeled so as to plainly indicate that they are mixtures, combinations, compounds, or blends, and not included in definition fourth of this section, shall not be deemed to have been adulterated: *Provided further*, that all manufactured articles of food offered for sale shall be distinctly labeled, marked or branded with the name of the manufacturer and place of manufacture, or the name and address of the packer or dealer who sells same.

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[1] The State food commissioner has published the following rules:

All milk offered for sale must be from healthy cows of clean and wholesome character, unadulterated, free from preservative, and must contain not less than three per cent of butter-fat.

The use of the word "Cream" on condensed milk cans is deemed *prima facie* evidence of intent to commit fraud.

Condensed milk shall be made from milk containing at least the legal standard of three per cent butter-fat and evaporated to one-third or less of its original volume.

Condensed skim milk must be plainly labeled as such.

Imitation butter must not be marked and sold as "Creamery" or "Dairy," but each should be marked plainly with its own name, but must be branded "Imitation Butter."

Oleomargarine, butterine and imitation butter can be manufactured and sold under their appropriate names and color when appropriately labeled. Each tub, package or parcel shall have distinctly and durably painted, stamped or marked thereon the true and appropriate name of such substance in ordinary bold-faced capital letters, not less than five lines pica.

"Whole milk" cheese, commonly miscalled "full cream" cheese, must contain at least forty-eight per cent of fat to total solids.

Butter shall contain at least 80 per cent of fat.

"Coffee cream" shall contain at least 15 per cent of fat, and "whipping cream" at least 22 per cent.

Canned goods must be labeled with grade or quality of the goods and the name and address of the seller or manufacturer.

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Canned goods. SEC. 20. No packer or dealer in preserved or canned fruits and vegetables, or other articles of food, shall sell or offer for sale such canned or preserved fruits and vegetables or other articles of food, unless they shall be entirely free from substances or ingredients deleterious to health, and unless such articles bear a mark, stamp, brand, or label, bearing the name and address of the firm, person, or corporation that packs same, or dealer that sells same. All soaked or bleached goods or goods put up from products dried before canning, shall be plainly marked, branded, stamped, or labeled as such, with the words "soaked" or "bleached goods" in letters not less than two-line pica in size, showing the name of the article and the name and address of the packer or dealer who sells same.

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False brands. SEC. 23. Whoever shall falsely brand, mark, stencil, or label any article or product required by this act to be branded, marked, stenciled, or labeled, or shall remove, alter, deface, mutilate, obliterate, imitate, or counterfeit any brand, mark, stencil, or label so required, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than twenty-five nor more than two hundred dollars and costs of prosecution, or by imprisonment in the county jail for not less than thirty days nor more than ninety days, or by both such fine and imprisonment, in the discretion of the court, for each and every offense. **Penalty.**

Taking orders deemed a sale. SEC. 24. The taking of orders, or the making of agreements or contracts, by any person, firm, or corporation, or by any agent or representative thereof, for the future delivery of any of the articles, products, goods, wares, or merchandise embraced within the provisions of this act, shall be deemed a sale within the meaning of this act.

Sample for analysis to be furnished. SEC. 25. Every person manufacturing, offering, or exposing for sale or delivery, to a purchaser any article intended for food, shall furnish to any person or analyst or other officer or agent appointed hereunder who shall apply to him for the purpose, and shall tender him the value of the same, a sample sufficient for the analysis of any such article which is in his possession. Whoever hinders, obstructs, or in any way interferes with any inspector, analyst or other officer appointed hereunder in the performance of his duty, and whoever wilfully neglects or refuses to do any of the acts or things enjoined by this act, or in any way violates any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction shall, where no specific penalty is prescribed by this act, be punished by a fine not exceeding two hundred nor less than twenty-five dollars, or by imprisonment in the county jail for a period not exceeding ninety days, or by both such fine and imprisonment in the discretion of the court. **Penalty.**

Repeal. SEC. 26. All acts and parts of acts inconsistent with this act, and section 6[1] of an act entitled "An act to prevent the adulteration of butter and cheese, or the sale or disposal of the same, or the manufacture or sale of any article as a substitute for butter or cheese, or any article to be used as butter and cheese," approved June 1, 1881, be, and they are hereby, repealed.

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[1] The act named and referred to above has but two sections.

Penalties suspended.

SEC. 27. For the purpose of enabling dealers in products affected by this act to dispose of same without loss, it is hereby expressly provided that the penalties of this act, and prosecution under same, are suspended until the first day of July, 1900.

INDIANA.

See Fourteenth Annual Report of the Bureau of Animal Industry, page 589, for—

Horner's Revised Statutes, 1897, sections 2071 and 2071a.—Concerning sale of adulterated and impure milk, butter and cheese, and oleomargarine.

Recently enacted:

ACTS OF 1899. Chapter 121.[1]

AN ACT forbidding the manufacture, sale or offering for sale of any adulterated foods or drugs, defining foods and drugs, stating wherein adulteration of foods and drugs consist and defining the duties of the State Board of Health in relation to foods and drugs, their inspection, purity, adulteration, declaring penalties for the violation of the laws, rules, and ordinances concerning foods and drugs, also liquors used or intended for drink, repealing acts in conflict therewith. (S. 54. Approved February 28, 1899. In force April 28, 1899.)

Adulterated food forbidden.

Food defined.

Adulteration defined.

Exceptions.

SECTION 1. That no person shall, within this State, manufacture for sale, offer for sale, or sell any drug or article of food which is adulterated within the meaning of this act. The term "drug" as used in this act, shall include all medicines for internal or external use, antiseptics, disinfectants, and cosmetics. The term "food" as used herein, shall include confectionery, condiments, and all articles used for food or drink by man. An article shall be deemed to be adulterated within the meaning of this act: (*a*) In case of drugs * * * (*b*) In the case of food, (1) if any substance or substances have been mixed with it, so as to reduce, or lower, or injuriously affect its quality or strength; (2) if any inferior or cheaper substance or substances have been substituted wholly or in part for it; (3) if any valuable constituent has been wholly or in part abstracted from it; (4) if it is an imitation of or sold under the name of another article; (5) if it consists wholly or in part of a diseased, decomposed, putrid, or rotten animal or vegetable substance, whether manufactured or not, or, in the case of milk, if it is the product of a diseased animal; (6) if it is colored, coated, polished, or powdered, whereby damage is concealed, or if it is made to appear better or of greater value than it really is; (7) if it contains any added poisonous ingredient, or any ingredient which may render it injurious to the health of the person consuming it. The provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles of food or drink: *Provided*, That the same are not injurious to health, and are distinctly labeled as mixtures or compounds; and no prosecutions shall at any time be maintained under said act concerning any drug, the standard of strength of purity whereof has been raised since the issue of the last edition of the United States Pharmacopeia, unless and until such change of standard has been published throughout the State.

State Board of Health to enforce.

Inspector of foods.

SEC. 2. It shall be the duty of the State Board of Health to enforce the laws of the State governing food and drug adulteration; and the State Health Officer shall be the State inspector of foods and drugs. The State Board of Health shall take cognizance of the interests of the public health relating to the sale of drugs and foods, and the adulteration of the same, and shall make all necessary investigation and inquiries in reference thereto, and for these purposes the State, county, city, and town Health Officers shall be food and drug inspectors, subordinate to the State Board of Health. Within ninety days after the passage of this act, the

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[1] This law is not strictly enforced because necessary appropriation for enforcement has not been made.

Rules concerning adulteration. **Samples for analysis.** **Penalties.**

State Board of Health shall adopt such measures[1] as may be necessary to facilitate the enforcement hereof, and shall prepare rules and ordinances where and when necessary regulating minimum standards for foods and drugs, defining specific adulteration and declaring the proper methods of collecting and examining drugs and articles of food. Every person offering or exposing for sale or delivering to a purchaser any drug or article of food included in the provisions of this act, shall furnish to any analyst or other officer or agent appointed hereunder, who shall apply to him for the purpose and shall tender to him the value of the same, a sample sufficient for the purpose of the analysis of any such drug or article of food which is in his possession. Whoever hinders, obstructs, or in any way interferes with any inspector, analyst or other officer appointed hereunder in the performance of his duty, and whoever violates any of the provisions of this act, shall, upon conviction, be fined in any sum not exceeding $100. Whoever fraudulently adulterates, for the purpose of sale, bread or any other substance intended for food with any substance injurious to health, or knowingly barters, gives away, sells or has in his possession with intent to sell any substance injurious to health, shall be fined in any sum not exceeding $100, and the article so adulterated shall be forfeited and destroyed under the direction of the court. Whoever adulterates, for the purpose of sale, liquor used or intended for drink, and whoever knowingly sells any such liquor so adulterated, shall be punished by fine of not less than one hundred nor more than five hundred dollars, and the article so adulterated shall be forfeited, and destroyed according to the order of the court.

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[1] *Rules of the Indiana State board of health, according to chapter 121, acts of 1899, establishing minimum standards and defining specific adulterations of foods and drugs.* (*Passed October 13, 1899.*)

MILK.

RULE 1. Pure cow's milk shall have the following minimum composition: Fat, 3 per cent; solids, not fat, 9 per cent.

RULE 2. Water existing in cow's milk in excess of 88 per cent shall be an adulteration. Any coloring matter added for any purpose whatsoever shall be an adulteration. Any chemical antiseptic whatever added for any purpose whatsoever shall be an adulteration.

RULE 3. Milk sold or offered for human consumption that is taken from a cow that has calved within four (4) days, or from a cow that will come in or calve inside of twenty-one (21) days, is polluted, and shall be considered as adulterated.

RULE 4. Milk sold or offered for human consumption that is taken from a cow fed with damaged food, or any food which will impart a disagreeable flavor, is impure, and shall be considered as adulterated.

RULE 5. Milk sold or offered for human consumption that is taken from any sick or diseased cow, or any cow that is given polluted water to drink, or which is kept under conditions contrary to the rules of the State board of health governing dairies, is impure, and shall be considered as adulterated.

BUTTER.

RULE 6. The word "butter" shall mean the substance usually known as butter, made exclusively from milk or cream, with or without salt or coloring matter, and shall contain not less than 80 per cent of pure milk fats.

RULE 7. If any of the following-named substances are found in butter, they shall be considered adulterants: Water in excess of 15 per cent; salt in excess of 6 per cent; salicylic acid, borax, boric acid, saltpeter, formaldehyde, glucose, sodium carbonate or bicarbonate, or any other added chemical, or any other fat than butter fat, any other coloring matter than is natural to butter, except annotto, saffron, safflower, turmeric, and harmless coal-tar colors.

MARGARINE.

RULE 8. The word "margarine" shall mean all substances, whether compounds or otherwise, prepared in imitation of butter, and whether mixed with butter or not.

RULE 9. If any of the following named substances are found in "margarine" they shall be considered adulterants: Water in excess of 15 per cent; salt in excess of 6 per cent; glucose, paraffin, salicylic acid, borax, boric acid, saltpeter, formaldehyde, sodium carbonate or bicarbonate, or any chemical preservative. Any coloring matter or mixture of coloring matters other than annotto, saffron, safflower, and turmeric and other harmless vegetable colors, and the harmless coal-tar colors shall be considered adulterants.

CHEESE.

RULE 10. Cheese not made wholly from milk or cream, salt, and harmless coloring matter shall be considered adulterated.

RULE 11. Cheese containing less than 10 per cent of milk fats shall be considered adulterated unless plainly labeled "Skim-milk cheese" in letters not less than 1 inch long, the label to be plainly exposed.

RULE 12. Cheese containing any other fats than milk fats shall be considered adulterated unless plainly labeled "Filled cheese."

RULE 13. Cheese containing any coloring matter other than annotto, safflower, saffron, turmeric, or harmless coal-tar colors shall be considered as adulterated.

RULE 14. Cheese containing any chemical antiseptic other than common salt shall be considered as adulterated, unless plainly labeled with the name of the antiseptic it contains.

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RULE 31. Food inspectors, when securing samples of food or drugs for analysis, shall, if the quantity procured be sufficient in amount, divide said sample into three equal parts, marking each one with date of collection, name and residence of vender, name and residence of inspector, and shall number the several portions 1, 2, 3. No. 1 shall be left with the vender, No. 2 retained by the inspector, and No. 3 reserved for or sent to the chemist selected to make the analysis. All these samples or portions shall be so sealed as to show upon sight any breaking of said seal.

RULE 32. Whoever violates any of the provisions of these rules shall, upon conviction, be fined in any sum not exceeding $100, as is provided in section 2, Chapter CXXI, of an act approved February 28, 1899.

Repeal. SEC. 3. All acts and parts of acts in conflict with the provisions of this statute are hereby repealed.

IOWA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 589–592, for—

Code of 1897, title 12, chapter 13, sections 2515–2528.[1]—Concerning dairy commissioner, testing apparatus, imitation butter and cheese, dairy premises, milk tests, permits to sell milk, appropriation, etc.

Code of 1897, title 24, chapter 10, sections 4989–4991.—Concerning milk standard, care of cows, skimmed-milk cheese, adulteration, etc.

KANSAS.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 593–594, for—

General statutes, 1897, volume 2, sections 322–325, 327–331.—Concerning impure milk and adulteration of food.

KENTUCKY.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 594 and 595, for—

Acts of 1891, 1892, and 1893, chapter 182, sections 144 and 151.—Concerning adulterated milk and false brands. (Approved April 10, 1893.)

Acts of 1898, chapter 52 (sections 1-11).—An act regulating the manufacture and sale of food.

LOUISIANA.

See Fourteenth Annual Report of the Bureau of Animal Industry, page 596, for—

Acts of 1886, No. 81 (sections 1-3).—An act to prohibit the sale in this State of oleomargarine, butterine, or other substances as butter, and to provide a penalty for the violation of the same. (Approved July 8, 1886.)

The following also refers to dairy products:

ACTS OF 1882, NO. 82.

AN ACT to define and punish adulteration of drugs, food and drink, providing for stamping articles manufactured, sold or offered for sale within this State, and prescribing punishment for its violation, and prescribing certain duties of the Board of Health relative to samples, and their analysis and fees therefor. (Approved July 5, 1882.)

Adulterated foods and drugs prohibited; penalty. SECTION 1. No person shall, within this State, manufacture, have, offer for sale, or sell any article of food or drugs which is adulterated, and any person violating this provision shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine not exceeding fifty dollars for the first offense, and not exceeding one hundred dollars for each subsequent offense.

Adulteration defined. SEC. 2. An article shall be deemed adulterated within the meaning of this act, in the case of drugs * * * and in the case of food or drink, if any substance has been mixed with it, so as to lower or injuriously affect its quality or strength, or if any inferior or cheaper substance or substances have been substituted wholly or in part for the pure article, or to mix any substance in food or drink so sold, or to sell the same so mixed, which by its use will affect in any extent the public health or injure the health of the consumer of said food or drink.

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[1] The appropriation named in section 2528 is now $4,000, in addition to the salary of the commissioner.

Wholesale packages of groceries, etc., to be stamped.

SEC. 3. No person shall manufacture, sell, or offer for sale within this State, any drugs, groceries, such as sugar, coffee, tea, butter, cheese, or any other article to be consumed as food or drink, unless the package when sold at wholesale or the package from which it is taken, when sold at retail be stamped in plain large letters, showing the true quality and kind of the articles sold within the meaning of this act, and every person violating the provisions of this section shall be deemed guilty of a misdemeanor, and shall upon conviction pay a fine of not less than twenty-five dollars, nor more than fifty dollars, or be sentenced to imprisonment for not more than ten days or both at the discretion of the court.

Penalty.

False labels; penalty.

SEC. 4. That any person who knowingly sells any article of food or drink with a stamp as provided aforesaid, and the article so sold is not the article it purports to be, or inferior quality, shall be deemed guilty of a misdemeanor, and upon conviction shall pay a fine not exceeding one hundred dollars.

State Board of Health to examine foods and publish results.

SEC. 5. The State Board of Health shall take cognizance of the interests of the public health as it relates to the sale of food and drugs, and the adulteration of the same, and make all necessary investigations and inquiries relative thereto; and at any time, when in their judgment necessary, they shall chemically analyze any drug or drugs, articles of food and drink, and shall publish the results of their analysis together with the name of the article or articles analyzed, in case the same be deleterious to the public health, and to warn the public against its consumption. On application of any citizen, they shall also analyze the article or articles presented for analysis by him: but in this case he shall pay such fees, for said analysis, as the Board of Health may fix.

Samples for analysis to be furnished.

SEC. 6. On application of the Board of Health through the officer to be selected by them, every person manufacturing or selling any article of food or drugs, shall be bound to furnish a sample of the said articles so manufactured, or sold to the said Board, sufficient in quantity to serve the purpose of analysis, under a penalty of not more than twenty dollars, to be recovered before any court of competent jurisdiction.

In effect.

SEC. 7. That this act shall take effect sixty days after the promulgation thereof.

MAINE.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 596–598, for—

Revised Statutes of 1883, chapter 38, sections 44–47.—Concerning milk inspectors; adulterated milk, and milk measures.

Public Laws of 1895, chapter 144 (one section).—An act relating to health and boards of health. (Approved March 26, 1895.)

Public Laws of 1895, chapter 169 (sections 1–5).—An act for the protection of dairymen. (Approved March 27, 1895.)

Revised Statutes of 1883, chapter 128, sections 3–6.—Concerning sale of imitations of butter and cheese.

MARYLAND.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 958–601 for—

Laws of 1890, chapter 604 (= sections 48, 49, 51–57 of article 43 of Code of Public General Laws).—An act to add additional sections to article forty-three of the Code of Public General Laws, title "Health," to be numbered "sections forty-eight, forty-nine, fifty, fifty-one, fifty-two, fifty-three, fifty-four, fifty-five, fifty-six, and fifty-seven," so as to provide for the prevention of the adulteration of articles of food and drink and the sale thereof when adulterated or unwholesome. (Approved April 8, 1890.)

Laws of 1894, chapter 53 (sections 1 and 2).—An act to authorize the mayor and city council of Baltimore to provide for the inspection and regulation of the sale of milk or any or all other food products offered for sale in the city of Baltimore, or intended for consumption therein. (Approved March 7, 1894.)

[Public General Laws, 1888, article 27, sections 88–91, were repealed and reenacted, amended, as below.]

Recently enacted:

LAWS OF 1898, Chapter 306, p. 871.

AN ACT to add certain new sections to Article 58 of the Code of Public General Laws, title "Live Stock," under the new sub-title "Dairies," to follow Section 18 in proper numerical order. (Approved April 9, 1898.)

New sections added to Article 58 of Code of Public General Laws.

SECTION 1. That certain new sections be and the same are hereby added to Article 58 of the Code of Public General Laws, title "Live Stock," under the new sub-title "Dairies," to follow section 18 of said Article in proper numerical order, and to read as follows:

Cattle to be registered.

Penalty.

19. It shall be the duty of all dairymen or herdsmen or private individuals supplying milk to cities, towns and villages to register their herds or cattle with the Live Stock Sanitary Board, in violation of which the parties offending shall be fined not less than $1 nor more than $20 for each offence.

Dairy premises to be inspected.

20. It shall be the duty of the Live Stock Sanitary Board, to have inspected at least annually, without notice to the owner or those in charge of any dairy or parties supplying milk, as named in section 19 of this article, the premises wherein cows are kept, and if such premises are found in any unsanitary condition, the said board may prohibit the sale and shipment of milk from such premises until such time as the premises shall conform to the following sanitary rules:

Construction of stables.

RULE 1. No building or shed shall be used for stabling cows for dairy purposes, which is not well lighted and well ventilated, and which is not provided with sufficient feed trough or box, and suitable floor, laid with proper grades and channels to immediately carry off all drainage; and if a public sewer abuts the premises upon which such building is situated, they shall be connected therewith whenever the inspector considers such sewer connection necessary.

Unsanitary conditions not permitted.

RULE 2. No water-closet, privy, cesspool, urinal, inhabited room or work-shop shall be located within any building or shed used for stabling cows for dairy purposes or for the storage of milk or cream; nor shall any fowl, hog, sheep, or goat be kept in any room used for such purposes.

Cleanliness; whitewash.

RULE 3. It shall be the duty of each person using any premises for keeping cows for dairy purposes, to keep such premises thoroughly clean and in good repair and well painted or whitewashed at all times.

Buildings to be kept clean.

RULE 4. It shall be the duty of each person using any premises for keeping cows for dairy purposes, to cause the building in which the cows are kept to be thoroughly cleaned, and remove all dung from the premises so as to prevent its accumulation in great quantities.

Milk vessels; care.

RULE 5. Any person using any premises for keeping cows for dairy purposes, shall provide and use a sufficient number of receptacles, made of nonabsorbent materials for the reception, storage and delivery of milk, and shall cause them at all times to be cleaned and purified, and shall cause all milk to be removed without delay from the rooms in which cows are kept.

Care of cows.

RULE 6. Every person keeping cows for the production of milk for sale shall cause every such cow to be cleaned every day, and to be properly fed and watered with abundance of pure, clean water.

Inclosures to be drained.

RULE 7. Any inclosure in which cows are kept shall be graded and drained, so as to keep the surface reasonably dry; no garbage, fecal matter, or similar matter shall be placed or allowed to remain in such inclosure unless sufficient straw or similar good absorbent materials be used to keep the inclosure clean at all times, and no open drains shall be allowed to run through it.

Penalty. And any person who shall ship or sell milk contrary to the aforesaid order of said board shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one dollar nor more than twenty dollars for each day during which shipments shall be made after notice of such order.

Certificates of health for cattle. 21. The Live Stock Sanitary Board shall, at the request of the owner or owners of dairy herds, furnish them with a certificate of health whenever the provisions of this article are complied with, and there is no visible sign of disease amongst such herd, such certificates shall be revocable in the discretion of the Board.

Appropriation. 22. For the purpose of paying the expenses required in carrying out the provisions of this sub-title, the sum of three thousand dollars is here appropriated annually, or so much thereof as is necessary out of the moneys in the treasury not otherwise appropriated, and the Comptroller is authorized and directed to draw his warrant on the treasury for such sum as the said board shall produce vouchers for, not exceeding the amount appropriated, payable monthly.

In effect. SEC. 2. That this Act shall take effect from the date of its passage.

LAWS OF 1900, Chapter 496.

AN ACT to repeal sections 88, 89, 90 and 91 of article 27 Code of Public General Laws—title, "Crimes and Punishments;" subtitle, "Frauds—Butter—Oleomargarine"—and to reenact the same with amendments, so as to read as follows: (Approved April 7, 1900.)

Repeal. SECTION 1. That Sections 88, 89, 90 and 91 of Article 27 Code of Public General Laws, title,—"Crimes and Punishments", sub-title, "Frauds—Butter—Oleomargarine" be and the same are hereby repealed and reenacted, so as to read as follows:

Imitations of butter prohibited. SEC. 88. That no person by himself, his agents or servants, or as the agent or servant of any other person, shall render or manufacture, sell or exchange, offer for sale or exchange, expose for sale or exchange, take orders for the future delivery of, have in his possession, keep in storage, distribute, deliver, transfer, or convey with intent to sell within this State, any article, product, or compound made wholly or partly out of any fat, oil, or oleaginous substance or compound thereof not produced directly and wholly from unadulterated milk or cream from the same, which shall be in imitation or semblance of yellow butter produced from pure unadulterated milk or cream from the same; *provided*, that nothing in this act shall be construed to prohibit the **Oleomargarine permitted.** manufacture or sale of oleomargarine in a separate form, and in such manner as will advise the purchaser and consumer of its real character free from coloration or ingredient which causes it to look like yellow butter. Whoever violates any of the provisions of this section, **Penalty.** shall be guilty of a misdemeanor, and shall be punished by a fine of not less than one hundred dollars nor more than three hundred dollars for the first offense, and by a fine of not less than two hundred nor more than five hundred dollars or by such fine and three months imprisonment for each subsequent offense.

Placards where oleomargarine is sold. SEC. 89. That whoever sells oleomargarine free from coloration or any ingredient that causes it to look like yellow butter, as provided in the previous section from any dwelling, store, office, or public market shall have conspicuously posted therein a placard or sign in plain Roman letters not less than four inches in length "Oleomargarine Sold Here." Any person neglecting or failing to post the placard herein provided **Penalty.** for, shall be guilty of a misdemeanor and shall be punished by fine of not less than one hundred dollars, nor more than three hundred dollars for the first offense, and one hundred dollars for each days neglect so to post or placard thereafter, and by a fine of not less than two hundred dollars nor more than five hundred dollars, or by such fine and three months imprisonment for each subsequent offense.

Sale of imitation as butter; penalty. SEC. 90. That whoever by himself, or his servants or agents, or as the servant or agent of any other person, sells or offers for sale to any person who asks, sends, or inquires for butter, any oleomargarine, butterine, or any substance made in imitation or semblance of butter, not made entirely of milk, or cream from the milk, of cows, with or without coloring matter, shall be guilty of fraud and shall be punished by fine of one hundred dollars for the first offense, and by imprisonment of three months for each subsequent offense.

Use of imitations in eating places, hospitals, etc.

SEC. 91. That no person by himself, his servants or agents, or as the servant or agent of any other person, shall serve to patrons, guests, boarders, or inmates of any hotel, eating house, restaurant, café, or any place of public entertainment or boarding house or public or private hospital, asylum, school, or penal institution, or help employed therein, any article or substance made in violation of the provisions of section 88 of this act, or any food made of the same or cooked in the same. Whoever by himself, his servants or agents, serves to any patron or guest or boarder, or inmate of any hotel, eating house, restaurant, café, or any place of public entertainment, or boarding house, or public or private hospital, asylum, school, or penal institution or help employed therein, oleomargarine free from coloration or any ingredient to make it look like yellow butter as provided in section 88 of this act, in the place or stead of butter, shall orally notify said guests, patrons, inmate, or help that the substance so furnished is not butter, and shall in addition conspicuously display at all times on each and every side of the room where the same is served a sign in plain Roman letters not less than four inches in length "Oleomargarine Used and Served Here." Any person violating the provisions of this section by neglecting or failing to give the oral notice and keeping the signs conspicuously posted on the walls of the room where the meals are served shall be guilty of a misdemeanor, and shall be punished by a fine of fifty dollars for the first offense, and by a fine of one hundred dollars, and imprisonment of one month for each subsequent offense.

Guests, etc., to be informed of use of oleomargarine.

Penalty.

Repeal.

SEC. 2. That all laws or parts of laws inconsistent with this act shall be, and the same are hereby, repealed.

Indictments to be prosecuted.

SEC. 3. That all indictments under the act of 1888, chap. 312, codified as sec. 88, 89, 90, and 91 of Article XXVII, shall be prosecuted as though the same were not repealed.

In effect.

SEC. 4. That this law shall take effect from the date of its passage.

MASSACHUSETTS.

See Fourteenth Annual Report of Bureau of Animal Industry, pp. 601-608, for—

Acts of 1891, chapter 412, sections 6-11.[1]—Concerning Dairy Bureau. (June 11, 1891.)

Public Statutes, chapter 57[2] (sections 1-11).—Concerning milk, licenses, and inspectors. [Section 9 of this act has been amended as below.]

Acts of 1885, chapter 352, section 8.—Concerning skimmed milk. (June 18, 1885.)

Acts of 1886, chapter 318, sections 3 and 4.—Concerning sealed samples. (In effect June 23, 1886.)

Acts of 1894, chapter 425 (one section).—Concerning samples. (May 22, 1894.)

Acts of 1896, chapter 264 (sections 1-3).—Concerning canned milk.

Public statutes, chapter 56, sections 17-21.—Concerning imitation butter and cheese and inspections.

Acts of 1886, chapter 317, sections 3-5.—Concerning dairy nomenclature and licenses for selling imitation butter, etc.

Acts of 1891, chapter 58[3] (secs. 1-3).—Concerning oleomargarine and inspections.

Acts of 1891, chapter 412 (secs. 1-5).—Concerning oleomargarine. (June 11, 1891.)

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[1] Section 6 is repealed by chapter 368, acts of 1900, and a new section, which was not received in time for publication in this bulletin, provides for a general agent of the dairy bureau.

[2] By chapter 240, section 38, acts of 1899, the city board of health of Somerville is authorized to appoint its own milk inspectors. Sections 5 and 6, as amended by sections 1 and 2 of chapter 300, acts of 1900, were not received in time for publication in this bulletin—their wording and penalties have been slightly changed.

[3] Most of the prosecutions for selling oleomargarine illegally are under this act.

Acts of 1889, chapter 326 (one section).—Concerning feeding garbage to cows. (Approved May 9, 1889.)

Acts of 1882, chapter 263, section 6.—Concerning samples. (In effect May 26, 1882.)

Recent amendment and enactments:

PUBLIC STATUTES, chapter 57.

Milk standard. SEC. 9 (as amended by section 6 of chapter 352 of the acts of the year 1885, and by section 2 of chapter 318 of the acts of the year 1886, and by section 2, chapter 398, acts of 1896 and by section 1, chapter 223, acts of 1899). In all prosecutions under this chapter, if the milk is shown upon analysis to contain less than thirteen per cent of milk solids, or to contain less than nine and three-tenths per cent of milk solids exclusive of fat, or to contain less than three and seven-tenths per cent of fat, it shall be deemed for the purposes of this act to be not of good standard quality, except during the months of April, May, June, July, August and September, when milk containing less than twelve per cent of milk solids, or less than nine per cent of milk solids exclusive of fat, or less than three per cent of fat, shall be deemed to be not of good standard quality.

ACTS OF 1899, chapter 169 (sections 1 and 2).

AN ACT relative to the inspection of milk. (Approved March 18, 1899.)

Report of analysis. SECTION 1. Whenever the State board of health, dairy bureau, or other State or city authority, obtains a sample of milk for inspection, by taking, purchase, or otherwise, the analysis of said sample shall within ten days of the procurement thereof, be sent to the person from whom the sample was obtained.

SEC. 2. This act shall take effect upon its passage.

ACTS OF 1899, chapter 340.

Renovated butter to be labelled. SECTION 1. Whoever, by himself or his agents, or as the servant or agent of any other person, sells, exposes for sale, or has in his custody or possession with intent to sell, any article or compound which is produced by taking original packing stock or other butter, or both, and melting the same, so that the butter fat can be drawn off, then mixing the said butter fat with skimmed milk, or milk, or cream, or other milk product, and rechurning the said mixture; or which is produced by any similar process and is commonly known as process butter, shall have the words "Renovated Butter" conspicuously stamped, labelled, or marked in a straight line in printed letters of plain, uncondensed Gothic type, not less than half an inch in length, so that said words can not easily be defaced, upon the top, side and bottom of every tub, firkin, box, or package containing said article or compound.

Retail sales. SEC. 2. In case of the retail sale of said article or compound not in the original package, the seller shall, by himself or his agents, attach to each package so sold, and shall deliver therewith to the purchaser, a label or wrapper bearing in a conspicuous place upon the outside of the package the words "Renovated Butter," in printed letters in a straight line of plain, uncondensed Gothic type, not less than half an inch in length.

Penalty. SEC. 3. Whoever violates any of the provisions of this act shall be punished by a fine of not less than one hundred dollars nor more than five hundred dollars, or by imprisonment in the house of correction for a term not exceeding one year.

MICHIGAN.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 608–617, for—

Public Acts, 1893, No. 211 (sections 1-12).—An act to provide for the appointment of a dairy and food commissioner, and to define his powers and duties and fix his compensation. (Approved June 2, 1893.) [Sections 6, 7, 9, 11, and 12 of this act have been amended as below.]

Public acts, 1895, No. 193, sections 1–8 and 17-21.—An act to prohibit and prevent adulteration, fraud, and deception in the manufacture and sale of articles of food and drink. (Approved May 22, 1895.)

Public acts of 1873, No. 26 (one section) (=Howell's Annotated Statutes, 2244) (=Compiled Laws, vol. 3, page 3405).—An act to prevent and punish offenders for the adulteration of milk, and the products made therefrom, and to repeal an act entitled "An act to prevent the adulteration of milk, and to prevent the traffic in impure and unwholsome milk," approved March thirty-first, eighteen hundred and seventy-one. (Approved March 12, 1875.)

Public acts, 1887, No. 246 (sections 1–14) (=Howell's Annotated Statutes, 1690m–1690z) (=Compiled Laws, vol. 3, page 3406).—An act to prevent the sale of impure, unwholesome, adulterated, or swill milk in the State of Michigan, and to provide for inspectors. (Approved June 25, 1887.)

Public acts of 1891, No. 45 (sections 1 and 2).—An act to prohibit the use of oleomargarine, butterine, or any other substitute for butter in any of the public institutions of this State, and to provide the punishment therefor. (Approved April 29, 1891.)

[It is reported that the oleomargarine law printed below repeals the three following acts: Public acts of 1897, No. 76; public acts of 1887, No. 166 (=Howell's Annotated Statutes, 1690j); and public acts of 1881, No. 34 (=Howell's Annotated Statutes, 2245)].

Recent amendments and enactments:

PUBLIC ACTS OF 1893, NO. 211.

Duties of commissioner.

SEC. 6. (As amended by Act No. 245, Public Acts, 1895; and by Act No. 154, Public Acts, 1897; and by Act No. 268, Public Acts, 1899.) It shall be the duty of the Dairy and Food Commissioner to carefully inquire into the quality of the dairy and food and drink products, and the several articles which are foods or the necessary constituents of foods, which are manufactured or sold or exposed or offered for sale in this State, and he may in a lawful manner procure samples of the same and direct the State analyst to make due and careful examination of the same, and report to the commissioner the result of the analysis of all or any of such food and drink products or dairy products, as is adulterated, impure or unwholesome, in contravention of the laws of this State, and it shall be the duty of the commissioner to make complaint against the manufacturer or vender thereof, in the proper county, and furnish the evidence thereon and thereof to obtain a conviction of the offense charged. The Dairy and Food Commissioner, or his deputy, or any person by him duly appointed for that purpose, may make complaint and cause proceedings to be commenced against any person for the violation of any of the laws relative to adulterated, impure, or unwholesome food, and in such case he shall not be obliged to furnish security for costs; and shall have power in the performance of their duties to enter into any creamery, factory, store, salesroom, drug store, or laboratory, or place where they have reason to believe food or drink are [is] made, prepared, sold or offered for sale, and to open any cask, tub, jar, bottle, or package containing or supposed to contain any article of food or drink and examine or cause to be examined the contents thereof, and take therefrom samples for analysis. The person making such inspection shall take such sample of such article or product, in the presence of at least one witness, and he shall in the presence of such witness mark or seal such sample and shall tender at the time of taking to the manufacturer or vender of such product, or to the person having the custody of the same, the value thereof, and a statement in writing of the reason for taking such sample.

Powers of officers.

Samples to be taken.

Prosecuting attorneys to assist.

SEC. 7. (As amended by Act No. 245, Public Acts, 1895; and by Act No. 268, Public Acts, 1899.) It shall be the duty of each prosecuting attorney when called upon, to render any legal assistance in his power, under the provisions of this act, or any subsequent act relative to the adulteration of food for the sale of impure or unwholesome food or food products.

Annual report; contents of.

SEC. 9. (As amended by Act No. 245, Public Acts, 1895; and by Act No. 154, Public Acts, 1897; and by Act No. 268, Public Acts, 1899.) The commissioner shall make an annual report to the Governor on or before the first day of July in each year, and which shall be printed and published on or before the first day of September next thereafter, which report shall cover the doings of his office for the preceding fiscal year which shall show, among other things, the number of manufactories and other places inspected and by whom, the number of specimens of food articles analyzed, and the State analyst's report upon each one; the number of complaints entered against persons for violation of the laws relative to the adulteration of food, the number of convictions had, and the amount of fines imposed therefor, together with such recommendations relative to the statutes in force as his experience may justify. The commissioner shall also prepare, print, and distribute to all the papers of the State, and to such persons as may be interested or may apply therefor, a monthly bulletin in suitable paper covers, containing results of inspections, the results of analyses made by the State analyst, with popular explanation of the same, and such other information as may come to him in his official capacity relating to the adulteration of food and drink products and of dairy products, so far as he may deem the same of benefit and advantage to the public; also a brief summary of all the work done during the month by the commissioner and his assistants in the enforcement of the laws of the State, but not more than ten thousand copies of each of such monthly bulletins shall be printed.

Monthly bulletins.

Appropriation. SEC. 11. (As added by Act No. 245, Public Acts, 1895; and amended by Act No. 154, Public Acts, 1897; and by Act No. 268, Public Acts, 1899.) There shall be appropriated each year the sum of eighteen thousand dollars, out of which shall be paid in such manner as other similar salaries, expenses, and accounts are allowed and paid, all the salaries and expenses provided for in this act: *Provided*, That all expenses for stationery and printing shall be audited and paid in the same manner as other State printing and stationery.

Tax levy. SEC. 12. (As added by Act No. 245, Public Acts, 1895; and amended by Act No. 154, Public Acts, 1897; and by Act No. 268, Public Acts, 1899.) The Auditor-General is hereby directed to annually add to and incorporate into the State tax, to be levied each year, the sum of eighteen thousand dollars, to be levied, assessed and collected as in case of other taxes for general purposes, upon all the property of the State, and when the tax is so levied and collected, the same shall be paid into and become a part of the general fund to reimburse such fund for the amounts appropriated to carry into effect the provisions of this act.

ACT No. 167, PUBLIC ACTS, 1899.

AN ACT in relation to the Powers and Duties of the Dairy and Food Commissioner of the State of Michigan.

Misdemeanor to obstruct an official. SECTION 1. That any person who shall obstruct the Dairy and Food Commissioner, or his deputy, or any of his duly appointed inspectors, by refusing to allow him entrance to any place where he is authorized to enter in the discharge of his official duty, or refuses to deliver to him a sufficient sample for the analysis of any article of food or drink sold, offered or exposed for sale, or in his possession for the purpose of sale, wherever the same may be found, when the same is requested and when the value thereof is tendered, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than twenty-five dollars or more than one hundred dollars and the costs of prosecution, or by imprisonment in the county jail not less than ten days or more than ninety days, or by both such fine and imprisonment, in the discretion of the court, for each and every offense.

Penalty.

In effect. This act is ordered to take immediate effect.

ACT No. 106, PUBLIC ACTS, 1899.

AN ACT in relation to the sale and delivery of milk.

Adulterated or preserved milk. SECTION 1. No person shall offer or expose for sale, sell, exchange, or deliver, or have in his possession with intent to sell, exchange, or deliver, any milk to which water, chemicals, or preservatives, or any other foreign substance has been added. The term milk as used in this act shall include all skimmed milk, buttermilk, cream and milk in its natural state, as drawn from the cow.

Penalty. SEC. 2. Whoever shall do any of the acts or things prohibited, or neglects or refuses to do any of the acts or things enjoined by this act, or in any way violates any of its provisions, shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than one dollar nor more than one hundred dollars and the costs of prosecution, or by imprisonment in the county jail not more than ninety days, or by both such fine and imprisonment, in the discretion of the court.

In effect. This act is ordered to take immediate effect.

ACT No. 254, PUBLIC ACTS, 1899.

AN ACT to regulate the sale of butter produced by taking original packing stock and other butter and melting the same, so that the butter oil can be drawn off, mixed with skimmed milk or other material and by emulsion or other process produce butter, and butter produced by any similar process, and commonly known as "Process" Butter; Providing for the enforcement thereof, and punishment for the violation of the same. (In effect September 22, 1899.)

Process butter must be labeled.

SECTION 1. That no person, firm or corporate body shall, within this State, sell, or offer or expose for sale, or have in his, her, or their possession with intent to sell, any butter not labeled in compliance with the provisions of this act. Butter produced by taking original packing stock and other butter and melting the same, so that the butter oil can be drawn off, mixed with skim milk or other material, and by emulsion or other process produce butter, and butter produced by any similar process, and commonly known as "Process" butter, shall before sale, and before being offered and exposed for sale, and while in the possession of any person, firm, or corporate body with intent to sell the same be plainly labeled "Process Butter," in the manner prescribed by this act. If sold, offered or exposed for sale, or in possession of any person, firm, or corporate body with intent to sell, the prints or rolls shall be covered by wrappers, on which shall be printed in conspicuous letters the words "Process Butter." If packed in tubs or other receptacles, and sold or offered or exposed for sale, or held in the possession of any person, firm, or corporate body with intent to sell the same, the said words shall be printed in one inch letters on the top and two sides of the tub or receptacle; if uncovered and not contained in a tub or other receptacle, and sold or offered or exposed for sale, or held in the possession of any person, firm, or corporate body with intent to sell the same, a placard containing the said words shall be attached to the mass, in a manner making them plain and prominent.

Penalty.

Commissioner and deputies to enforce; special powers.

Payments for enforcement.

SEC. 2. Every person, firm, or corporate body who shall violate any of the provisions of this act shall, for every such offense, forfeit and pay not less than twenty-five dollars nor more than one hundred dollars, which shall be recoverable with costs, including expense of inspection and analysis, by any person suing in the name of the People of the State of Michigan, as debts of like amount are by law recoverable: *Provided*, That the Dairy and Food Commissioner, together with the deputies, agents and assistants, shall be charged with the enforcement of this act, and shall have full access to all places of business, factories, buildings, carriages, cars, vessels, barrels, and packages of whatever kind, used in the manufacture and transportation and sale of any butter or any adulteration or imitation thereof. They shall also have power and authority to open any package, barrel, or vessel containing any butter, or any adulteration or imitation thereof, which may be manufactured, sold, or offered or exposed for sale, or held in possession with intent of the holder to sell; and they shall also have full power and authority to take the samples thereof for analysis, upon tendering the value of said samples. And all charges, accounts, and expenses of the department for the enforcement of this act, through the said commissioner, and his deputies, agents, assistants, chemists, and counsel employed by him in carrying out the provisions of this act, shall be paid by the treasurer of the State out of the appropriation for the support of the Dairy and Food Department.

Penalty.

Disposition of fines.

SEC. 3. Every person who violates any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not more than one hundred dollars, or by imprisonment in the county jail for not more than thirty days, or both fine and imprisonment, for the first offense; and a fine of one hundred dollars and imprisonment for thirty days, for every subsequent offense: *Provided*, That all fines and costs, including the expense of inspection and analysis imposed under this section, shall be covered into the State Treasury, as provided by section two of this act; and all butter sold or offered or exposed for sale, or held in the possession of anyone with intent to sell the same in violation of the provisions of this act shall be subject to forfeiture and spoliation.

Justices of the peace to act.

SEC. 4. Justices of the peace throughout this State shall have jurisdiction to hear and determine actions arising for violations of the provisions of this act, and to hold for court or to impose the penalties imposed therein, subject to appeal as the law shall direct.

ACT NO. 147, PUBLIC ACTS, 1899.

AN ACT in relation to the manufacture and sale of oleomargarine or imitation butter.

Oleomargarine to be labeled. SECTION 1. No person shall sell, expose or offer for sale or exchange, or have in his possession with intent to sell or exchange, any oleomargarine or other substance made in imitation of butter, and which is intended to be used as a substitute for butter, unless each and every vessel, package, roll, or parcel of such substance has distinctly and durably printed, stamped, or stenciled thereon in black letters the true name of such substance, in ordinary bold-faced capital letters, not less than five-line pica in size; and also the name and address of the manufacturer, together with the name of each and every article or ingredient used or entering into the composition of such substance, in ordinary bold-faced letters, not less than pica in size.

Verbal notice with sale. SEC. 2. No person shall sell, exchange, or deliver any oleomargarine or other substance made in imitation of butter, and which is intended to be used as a substitute for butter, unless he shall distinctly inform the purchaser by a verbal notice at the time of the sale that the same is a substitute for butter, and shall also deliver to the purchaser of each and every roll, package, or parcel of such oleomargarine or other substance, at the **Label with sale.** time of the delivery of the same, a separate and distinct label, on which is plainly and legibly printed in black ink in ordinary bold-faced capital letters not less than five-line pica in size, the true name of such substance and also the name and address of the manufacturer, together with the name of each article used and entering into the composition of such substance, in ordinary bold-faced letters not less than pica in size.

Placards in eating places and stores. SEC. 3. The proprietor or keeper of any store, hotel, restaurant, eating saloon, boarding house, or other place where oleomargarine is sold or furnished to persons paying for the same, shall have placed on the walls of every store or room where oleomargarine is sold or furnished, a white placard on which is printed in black ink, in plain Roman letters of not less than three inches in length, and not less than two inches in width, the words "Oleomargarine Sold or Used Here," and shall at all times keep the same exposed in such conspicuous place as to be readily seen by any and all persons entering such store or other room or rooms.

Dairy terms for oleomargarine forbidden. SEC. 4. No person shall use in any way, in connection or association with the sale or exposure for sale or advertisement of any substance designed to be used as a substitute for butter, the word "Butter," "Creamery," or "Dairy," or the name or representation of any breed of dairy cattle, or any combination of such word or words and representation, or any other words or symbols or combinations thereof commonly used in the sale of butter.

Butter defined. SEC. 5. For the purpose of this act the word "butter" shall be understood to mean the food product usually known as butter, and which is made exclusively from milk or cream, or both, with or without common salt, and with or without additional coloring matter.

Oleomargarine defined. SEC. 6. For the purposes of this act certain manufactured substances, certain extracts, and certain mixtures and compounds, including such mixtures and compounds with butter, shall be known and designated as "Oleomargarine," namely: All substances heretofore known as oleomargarine, oleo, oleomargarine oil, butterine, lardine, suine, and neutral; all mixtures and compounds of oleomargarine, oleo, oleomargarine oil, butterine, lardine, suine, and neutral; all lard extracts and tallow extracts; and all mixtures and compounds of tallow, beef fat, suet, lard, lard oil, vegetable oil, butterine, lardine, suine and neutral; all lard extracts and tallow extracts; and all mixtures and compounds of tallow, beef fat, suet, lard, lard oil, vegetable oil, intestinal fat, and offal fat, made in imitation or semblance of butter, or, when so made, calculated or intended to be sold or used as butter or for butter.

Penalty. SEC. 7. Whoever violates any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty dollars, nor more than five hundred dollars, and the costs of prosecution, or by imprisonment in the county jail or State House of Correction and Reformatory at Ionia, for not less than six months nor more than three years, or by both such fine and imprisonment in the discretion of the court, in each and every offense. All acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

In effect. This act is ordered to take immediate effect.

MINNESOTA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 622–623, for—

General Laws of 1887, chapter 141 (sections 1 and 2).—An act to prevent fraud in dairy products and to preserve health.

General Laws of 1895, chapter 202 (sections 1–5).—An act to preserve the public health by requiring dealers in certain cases to empty and wash cans, bottles, and vessels used in transporting milk or cream. (Approved April 25, 1895.)

General Laws of 1895, chapter 203 (sections 1–3).—An act relating to the inspection of milk and of dairies and dairy herds, and to provide for the licensing and regulation of the sale of milk in cities. (Approved April 26, 1895.)

[General Laws of 1885, chapter 149, as amended and supplemented by chapter 140, General Laws of 1887 and chapter 247, General Laws of 1889; and General Laws of 1891, chapter 11, have been superseded by General Laws of 1899, chapter 295, below.]

Recently enacted:

GENERAL LAWS 1899, CHAPTER 295.

AN ACT to prevent fraud in the sale of dairy products, their imitations or substitutes, to prohibit and prevent the manufacture or sale of unhealthy or adulterated dairy products, and to preserve the public health. (Approved April 19, 1899.)

State dairy and food commissioner; salary. SECTION 1. The governor shall appoint a commissioner who shall be known as the State Dairy and Food Commissioner, who shall be a citizen of this State, and who shall hold his office for a term of two years, or until his successor is appointed, and who shall receive a salary of $1,800 per annum and his necessary expenses incurred in the discharge of the duties required of him by law, and shall be charged with the enforcement of the various laws coming under his department. **Duty.** It shall be the duty of the said commissioner to enforce all laws that now exist or that hereafter may be enacted in this State regarding the production, manufacture, and sale of dairy products, their imitations and substitutes and food prepared therefrom, the production, manufacture, sale, or adulteration of which is made subject to this or other laws, and to prosecute or cause to be prosecuted any person, firm, or corporation or agent thereof, engaged in the manufacture or sale of any impure, adulterated, or counterfeit dairy products that are produced, offered for sale, or sold, contrary to the laws of this State. Said commissioner may be removed from office at the pleasure of the governor and a successor appointed in his stead. **Other officers and salaries.** The said commissioner is hereby authorized and empowered to appoint a secretary, whose salary shall be $1,200 per annum, one assistant commissioner, whose salary shall be $1,500 per annum, one chemist, whose salary shall be $1,500 per annum, one assistant chemist when needed, to be paid not to exceed $100 per month, and such number of inspectors as may by him be deemed necessary, to be paid at the rate of $100 per month and the necessary expenses incurred in the performance of their duties, and to employ such counsel as may be deemed necessary. **Appropriation.** The sum of $15,000 annually is hereby appropriated to be paid for the execution of the dairy laws, out of any money in the State treasury not otherwise appropriated. All charges, accounts, and expenses authorized by this act shall be paid by the treasurer of the State upon the warrant of the State auditor. **Biennial reports and bulletins.** The said commissioner shall make biennial reports to the legislature not later than the fifteenth day of January of his work and proceedings, and shall report in detail the number of inspectors he has appointed and employed, with their expenses and disbursements, and the amount of salary paid the same, and he may from time to time issue bulletins of information, when in his judgment the interests of the State would be promoted thereby. **Office and laboratory.** The said commissioner shall have rooms in the capitol, to be set apart for his use by the governor, and a laboratory in the capitol where all chemical analyses for the department shall be conducted. This section shall not affect the tenure of office of the present commissioner, and he shall be regarded as having been appointed under the provisions of this act.

Powers of officers. SEC. 2. The said commissioner and assistant commissioner and such inspectors, agents, experts, chemists, and counsel as they shall duly authorize for the purpose, shall have access, ingress, and egress to all places of business, factories, farms, buildings, carriages, and cars used in the manufacture and sale or transport of any dairy product or any substitute therefor, or imitation thereof, and also into all restaurants, dining halls, cafes, hotels and all rooms thereof, and all other places wherein food is prepared, stored or served to patrons. They shall also have power and authority to open any package, can or vessel containing such article which may be manufactured, sold, or exposed for sale in violation of the provisions of this act, or laws that now exist or that may hereafter be enacted in this State, and may inspect the contents thereof, and may take samples therefrom for analysis. **Assistance to be given.** All dealers, clerks, bookkeepers, express agents, railroad officials, employes, or common carriers shall render to them all the assistance in their power when so required in tracing, finding, or discovering the presence of any article prohibited by law.

Failure to assist. SEC. 3. Any refusal or neglect on the part of such dealers, clerks, bookkeepers, express agents, railroad officials, employes, or common carriers to render such friendly aid shall be deemed a misdemeanor and shall be punished as hereinafter provided.

Impure milk prohibited. SEC. 4. No person, firm, or corporation shall offer or expose for sale, or sell or deliver for sale or consumption, or have in his possession with intent to sell, any unclean, impure, unhealthful, unwholesome, or adulterated milk or cream from the same, or any milk, or cream from the same, which has not been well cooled, aerated, or to which preservatives of any kind have been added.

Care of cows. SEC. 5. No person, firm, or corporation shall keep cows for the production of milk for market or for sale or exchange, or for manufacturing the same, or cream from the same, into articles of food, in a crowded condition, or in stables which are not perfectly ventilated or which are filthy from an accumulation of animal refuse or from any other cause. **Use of milk from unclean or affected cows.** Nor shall milk for such purposes be drawn from cows which are themselves in a condition of filth or uncleanness, or from cows which are affected with tuberculosis, ulcers, running sores, or any other form of disease, or from cows which are fed, either wholly or in part, upon distillery waste, or brewery grains, or the waste of vinegar, or that of sugar factories, not properly preserved in silos, or upon any other form of food which will produce milk which is unhealthful or unwholesome; or from cows within fifteen days before and five days after parturition; and all milk thus produced is hereby declared to be unclean, impure, unhealthful, and unwholesome milk, and any milk which is shown by analysis to contain any substance or substances of any character whatever not natural or normal constituents of milk, or to have been deprived either wholly or in part of any constituent naturally or normally contained in milk or which is shown to contain more than eighty-seven per centum of water fluids or less than thirteen per centum of milk solids, of which not less than three and one-half per centum shall be fat, is hereby declared to be adulterated milk. **Addition of foreign matter.** **Milk standard.** This section shall not be construed to prevent the feeding of ensilage from silos. The having in possession by any person, firm or corporation producing milk for market or for sale or exchange, or for manufacturing the same, or cream from the same into articles of food, of distillery waste or brewery grains, or the waste of vinegar, or that of sugar factories not preserved as aforesaid, or any other form of food which will produce milk which is unhealthy or unwholesome, shall be considered for the purposes of this act as prima facie evidence of an intent to use the same contrary to the provisions of this act.

Manufacture of any food from unhealthy milk. SEC. 6. No person, firm, or corporation shall manufacture from unclean, impure, unhealthful, or unwholesome milk, or of cream from the same, any article of food.

Cream standard. SEC. 7. No person, firm, or corporation shall sell or offer for sale or have in his possession with intent to sell, any cream taken from impure, unwholesome, or diseased milk or cream that contains less than twenty per centum of fat.

Skim milk must be labeled. SEC. 8. No person, firm, or corporation shall sell or expose for sale, or have in his possession, with intent to sell, in any store or place of business, or on any wagon or other vehicle used in transporting or selling milk from which cream has been removed, or milk commonly called "skimmed milk," without first marking the can, vessel, or package containing said milk with the words "skimmed milk," in large, plain, black letters upon a light-colored background, each letter being at least one inch high and one-half inch wide; said words shall be on the top or side of said can, vessel, or package where they can be easily seen.

Standard apparatus for testing milk. SEC. 9. The State standard milk measures or pipettes shall have for milk a capacity of seventeen and six-tenths cubic centimeters, and for cream shall have a capacity of eighteen cubic centimeters, and the State standard test tubes or bottles for milk shall have a capacity for two cubic centimeters of mercury at a temperature of sixty degrees Fahrenheit between "zero" and ten on the graduated scale marked on the necks thereof; and the standard test tubes or bottles for cream shall have a capacity of six cubic centimeters of mercury at a temperature of sixty degrees Fahrenheit between "zero" and thirty on the graduated scale marked on the necks thereof, and it is hereby made a misdemeanor to use any other size of milk measure, pipette, test tube, or bottle to determinate the per cent of butter fat, where milk or cream is purchased by, or furnished to, creameries or cheese factories, and where the value of said milk or cream is determined by the per cent of butter fat contained in the same. **Penalty.** Any manufacturer, merchant, dealer, or agent in this State who shall offer for sale or sell, a cream or milk pipette or measure test tube or bottle which is not correctly marked or graduated as herein provided shall be guilty of a misdemeanor, and upon conviction thereof shall be punished as provided in section 30 of this act.

False tests. SEC. 10. It shall be unlawful for the owner, manager, agent or any employe of a creamery or cheese factory to manipulate or under-read the Babcock test, or any other contrivance used for determining the quality or value of milk.

Sale or use of preservatives prohibited. SEC. 11. No person, firm, or corporation shall manufacture for sale, advertise, offer or expose for sale, or sell, any mixture or compound intended for use as an adulterant of or preservative of milk, butter, or cheese, nor shall any person, firm, or corporation add to milk or butter or cheese, or during the process of their manufacture, any borax, boric acid, salicylic acid, formaldehyde, formalin, or any other substance or substances in the nature of adulterants, antiferments, or preservatives. *Provided*, however, that this section shall not apply to pure salt added to butter and cheese.

Licenses to peddle milk. SEC. 12. Whoever by himself or his agents conveys milk in carriages, carts, or other vehicles, or in any manner, for the purpose of selling the same, in any city or town of 1,000 inhabitants or more, shall annually on the first day of May, or within thirty days thereafter, be licensed by the State Dairy and Food Commissioner to sell milk within the limits of said city or town, and shall pay to the said State Dairy and Food Commissioner the sum of one dollar for each and every carriage, cart, or other vehicle thus employed, to the use of said dairy and food commissioner. Licenses shall be used only in the names of the owners of carriages, carts, or other vehicles, and shall for the purpose of this act be prima facie evidence of ownership. All licenses shall terminate on the first day of May of each and every year. No licenses shall be sold, assigned or transferred. Each license shall record the name, residence, place of business, number of carriages, carts, or other vehicles used (where more than one is employed), the name and residence of any driver, or other person engaged in selling or delivering said milk, the number of the carriage, cart, or other vehicle, where he has more than one, and the number of license. **Requirements of licenses.** Each licensee shall, before engaging in the sale of milk, cause his name, the number of his license, and the number of the carriage, cart, or other vehicle, where he has more than one, and his place of business to be legibly placed on each outer side of all carriages, carts, or other vehicles used by him in the conveyance or sale of milk and he shall report to the State dairy and food commissioner any change of driver, or other person employed by him, which may occur during the term of his license. Any person keeping not more than one cow shall be exempted from the provisions of this section.

Licenses to sell at stores, etc., required. SEC. 13. Every person, firm, or corporation before selling milk or offering it for sale, or having it in his possession, with intent to sell in a store, booth, stand, creamery, cheese factory, or any other place, in the respective towns or cities, as designated in section 13 of this act, shall procure a license from the State Dairy and Food Commissioner, or his authorized agents, and shall pay therefor the sum of one dollar. Every such license shall terminate on the first day of May in each and every year. No license shall be sold or transferred.

Disposal of adulterated milk. SEC. 14. No person by himself or his agents or servants shall sell, supply, or bring to be manufactured, to any butter or cheese manufactory any milk diluted with water or any other substance

Use of milk for benefit of operators.

Record of operations of factories.

whatever, or any unclean, impure, unhealthy, adulterated, or unwholesome milk, or milk from which any cream has been taken (except pure skim milk to skim cheese factories), or shall keep back any part of the milk commonly known as "strippings," or shall bring or supply milk which is sour, to any butter or cheese manufactory (except pure skim milk to skim cheese factories). No butter or cheese manufactories except those which buy all the milk they use shall use for their own benefit or allow any of their employes or any other person to use any of the milk or cream brought to said manufactories, or the product thereof, without the consent of the owners thereof. Every butter and cheese manufacturer, except those who buy all the milk they use, shall keep a correct record of all the milk daily received, and of the number of pounds and packages of butter, the number and aggregate weight of cheese made each day, the number of packages of cheese and butter disposed of, which record shall be open to inspection to every person who delivers milk to such manufacturer.

Other articles not to be sold as butter or cheese.

SEC. 15. No person by himself or his agents or servants shall manufacture for sale, have in his possession with intent to sell, offer or expose for sale, or sell as butter or as cheese any substance not the exclusive and legitimate product of milk or cream.

Imitations of butter and cheese prohibited.

SEC. 16. No person by himself or his agents, or his agents or servants shall manufacture for sale, have in his possession with intent to sell, expose or offer for sale, or sell as butter or as cheese, or as substitutes for butter or cheese, or as imitations of butter or cheese, under any name or title whatsoever, any mixture or compound, which is designed to take the place of butter or of cheese, and which is made from animal or vegetable oils or fats, or by the mixing or compounding of the same, or any mixture or compound consisting in part of butter or of cheese in mixture or combination with animal or vegetable oils or fats, nor shall any person mix, compound with or add to milk, cream, butter, or cheese any animal or vegetable oils or fats, with design or intent to make or produce any article or substance in imitation of butter or cheese, nor shall any person coat, powder, or color with annotto or with any other coloring matter whatever, butterine, or oleomargarine or any mixture or compound of the same, or any article or compound made wholly or in part from animal or vegetable oils or fats not produced from milk or cream, whereby the said article or compound shall be made to resemble butter or cheese, nor shall any person offer or expose for sale or sell any article, substance, or compound made, manufactured, or produced in violation of the provisions of this section, whether such article, substance, or compound shall have been made, manufactured, or produced within this State or in any other State or country; and the having in possession by any person, firm, or corporation of any article, substance, or compound made, manufactured, or produced in violation of the provisions of this section shall be considered as prima facie evidence of an intent to sell the same as butter or as cheese contrary to the provisions of this section.[1]

Cheese brands.

SEC. 17. The Minnesota State Dairy and Food Commissioner is hereby authorized and directed to procure and issue to the cheese manufacturers of the State, and under such regulations as to the custody and use thereof as he may prescribe, a uniform stencil brand bearing a suitable device or motto, and the words "Minnesota State Full Cream Cheese." Every brand issued shall be used upon the outside of the cheese, and also upon the package containing the same, and shall bear a different number for each separate manufactory, and the commissioner shall keep a book in which shall be registered the name, location, and number of each manufactory using the said brand, and the name or names of the persons at each manufactory authorized to use the same. It shall be unlawful to use or permit such stencil brand to be used upon any other than full cream cheese, or packages containing the same.

Cheese standard.

All cheese branded as "Minnesota State Full Cream Cheese" shall contain not less than forty-five per centum of fats to total solids, and all cheese purporting to be full cream cheese which contains less than forty-five per centum of fats to total solids, shall be deemed, for the purpose of this act, to be adulterated.

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[1] Circuit Court, D, (District Judge Lochren). Minnesota. September 21, 1899. "Oleomargarine is a lawful subject of commerce, and a State statute (Act Minn. April 19, 1899, § 16) which prohibits the sale of oleomargarine so colored as to resemble butter is unconstitutional and void in so far as it applies to a sale within the State of oleomargarine manufactured in another State, and imported by the agent of the manufacturer, and sold by him in the original and unbroken packages of importation, stamped and marked as required by the act of Congress of August 2, 1886, the product being composed of the materials described in said act as constituting lawful oleomargarine of commerce." (From *Federal Reporter*, November 21, 1899, p. 963.)

"Skim cheese;" label required. SEC. 18. All cheese which contains less than forty-five per centum of fats to total solids is hereby declared to be "skim cheese," and it is hereby required and directed that the same shall be marked with a stencil or brand with the words "Skim Cheese," in plain black letters, not less than one and one-half inches in length and of proportionate width, upon the circumference of the cheese, and upon the outer surface of the box or package containing the same; and any dealer or trader who, by himself, or as the servant or agent of another person, has in his possession with intent to sell, offers or exposes for sale, or sells any skim cheese as hereinbefore defined, which is not stenciled or branded as hereinbefore required and directed, shall be deemed to be guilty of a misdemeanor, and shall be subject to the penalties provided in this act.

Sign to be displayed where it is sold. Every dealer or trader who offers or exposes for sale or sells skim cheese as hereinbefore defined, shall cause to be kept continuously posted in a conspicuous position upon the walls of the room wherein such skim cheese is offered or exposed for sale or sold, cards upon the face of which is distinctly and legibly printed in the English language, and in letters of sufficient size to be visible from all parts of the room, the words "Skim Cheese Sold Here."

False brands or labels prohibited. SEC. 19. No person, by himself or agent, shall sell or offer or expose for sale, or have in his possession with intent to sell, cheese branded or labeled with a false brand or label as to the quality of the article, or as to the county or State in which the article is made.

Notice of use of oleomargarine. SEC. 20. Every proprietor, keeper, landlord, or steward of any hotel, restaurant, dining car, eating house, boarding house, or lumber camp, either public or private, who shall supply the guests or boarders of such hotel, restaurant, dining car, eating house, boarding house, or lumber camp with any oleaginous substance or substances or any compound of the same, or any other compound other than that produced from unadulterated milk, or of cream from the same, or any article designed to take the place of butter, shall cause to be plainly printed upon every bill of fare used in said hotel, restaurant, eating house, boarding house, or lumber camp, when such adulterated compound is used immediately under the title thereof and before the naming of any article of food thereon, in capital letters, no smaller than those known as nonpariel celtic, in the English language, the words "Oleomargarine (or butterine) used as a substitute for butter." In case no bill of fare is used in said hotel, restaurant, dining car, eating house, boarding house, or lumber camp, then the proprietor or keeper thereof shall cause to be posted upon each and every side of the dining room or eating room, in a position where the same can be seen from any part of said room, and in letters large enough to be distinctly seen and read from any part of said room, a card containing the words in the English language "Oleomargarine (or butterine) used as a substitute for butter," and shall keep the same continuously posted as aforesaid, so long as said compounds, or either of them, are kept and used. The provisions of this section shall not be construed as in any wise amending or invalidating any of the provisions of sections fifteen (15) or sixteen (16) of this act.

Statistical reports from creameries and cheese factories. SEC. 21. The commissioner shall provide blanks which shall be furnished to all proprietors or managers of creameries and cheese factories within the State for the purpose of making a report of the amount of milk and dairy goods handled, and embodying such other statistical information as the commissioner may require, and all owners or managers of said creameries and cheese factories shall, on the first day of November of each year, send to the dairy and food commissioner a full and accurate report of the amount of business done during the year, including the statistical information required by said commissioner.

Seizure of unlawful products. SEC. 22. It shall be the duty of said commissioner, assistant commissioners, inspectors, and agents at any and all times to seize and take possession of any and all food and dairy products, or substitutes therefor, or imitations thereof, kept for sale or for a purpose, or held in possession or under control, contrary to the provisions of this act, or other laws which now exist, or may be hereafter enacted. Such seizure may be had without a warrant and said commissioner, assistant commissioners, and all inspectors and agents appointed pursuant to law are hereby given full power and authority of constables. Any court having jurisdiction, upon receiving proof of probable cause for believing in the concealment of any food or dairy products or substitutes therefor, or imitations thereof, kept for sale or for a purpose, or had in possession or under control, contrary to the provisions of this act, or other laws which now exist or may be hereafter enacted, shall issue a search warrant and cause a search to be made in any place therefor, and to that end may cause any building, enclosure, wagon, or car to be entered, and any apartment, chest, box, locker, tub, jar, crate, basket, or package to be broken open and the contents thereof examined.

Search warrants. SEC. 23. All such warrants shall be directed to said commissioner, or assistant commissioners, or any inspector or agent appointed pursuant to law, or the sheriff or constable, commanding such commissioner, assistant commissioners, inspector, agent, or officer to search the house or place where such food or dairy product or substitute therefor or imitation thereof for which he is required to search is believed to be concealed, which place and the property to be searched for shall be designated in the warrant, and to bring such food or dairy product, or substitutes therefor or imitations thereof, when found, and the person in whose possession the same is found, before the magistrate who issued the warrant, or before some other court or magistrate having jurisdiction of the case.

Disposition of seized goods. SEC. 24. When the officer in the execution of any search warrant issued under this act finds and seizes any food or dairy product, or substitute therefor or imitation thereof, all the property or things so seized shall be safely kept by the direction of the court or magistrate so long as is necessary for the purpose of being produced in evidence in any trial, and on such trial, it being found that such food or dairy product, or any substitute therefor or imitation thereof, is being kept for sale or for a purpose, or held in possession or under control, contrary to the provisions of this act, or other laws which now exist or may be hereafter enacted, the court shall, in addition to the other penalties prescribed by this act, order that said property be forfeited to the State of Minnesota, and shall order the same sold for any purpose other than to be used for food, and the proceeds thereof paid into the State treasury and placed to the credit of the State Dairy and Food Commissioner's fund. The Dairy and Food Commissioner, his agent or inspector is authorized to take samples from products seized for the purpose of analysis.

Effacement of marks, etc. SEC. 25. No person shall efface, erase, cancel, or remove any mark, statement, or label provided for by this act with the intent to mislead, deceive, or to violate any provisions of this act.

Unlawful sales; no action. SEC. 26. No action shall be maintained on account of any sale, or other contract made in violation of, or with intent to violate, any provisions of this act.

Evidence of violation. SEC. 27. The doing of anything prohibited, and the not doing of anything directed to be done by this act, shall be prima facie evidence of a willful intent to violate the different sections and provisions hereof.

SEC. 28. In all prosecutions arising under this act the certificate of the chemist making the analysis, when duly sworn to by such analyst, shall be prima facie evidence of the fact or facts therein certified.

Fees, fines, etc., go to commissioner's fund. SEC. 29. All moneys received from license fees, all fines collected for the violation of laws relating to food or dairy products, their imitations or substitutes, and the proceeds from all goods confiscated and sold under the provisions of this act and other laws relating to dairy or food products, their imitations or substitutes, shall be paid into the State treasury and placed to the credit of the Dairy and Food Commissioner's fund.

Penalty. SEC. 30. Whoever violates any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished for each offense by a fine of not less than twenty-five nor more than one hundred dollars, or by imprisonment of not less than thirty days, nor more than ninety days.

Repeal. SEC. 31. Chapter 11, General Laws of 1891, and all acts and parts of acts inconsistent with the provisions hereof are hereby repealed.

In effect. SEC. 32. This act shall take effect and be in force from and after its passage.

GENERAL LAWS 1899, Chapter 257.

AN ACT to prevent the use of chemical agents as preservatives in milk, cream, cheese, and butter. (Approved April 18, 1899.)

Use of preservatives prohibited. SECTION 1. Any person, firm, or corporation who shall sell, or offer for sale, or consign, or have in his pos-

Penalty. session with intent to sell to any person or persons, any milk, cream, butter, cheese, or any other dairy products, or who shall deliver to any creamery or cheese factory, milk or cream to be manufactured into butter or cheese, to which has been added any preparation in powdered or liquid form, known as preservatives, or any other compounds containing antiseptics, shall be deemed guilty of a misdemeanor, and upon conviction therefor be punished by a fine of not less than twenty-five nor more than one hundred dollars for each and every offense. This shall not be construed to prohibit the use of salt in butter.

Commissioner to enforce. SEC. 2. The State Dairy and Food Commissioner and his assistants, experts, and chemists, by him appointed, shall be charged with the proper enforcement of all the provisions of this act.

Costs and fines. SEC. 3. In all prosecutions under this act the costs shall be paid in the manner now provided by law, and the fines resulting therefrom shall be paid into the State treasury and placed to the credit of the State Dairy and Food Commissioner's Fund.

In effect. SEC. 4. This act shall take effect and be in force from and after its passage.

GENERAL LAWS 1899, Chapter 94.

AN ACT to prevent fraud in the branding and sale of process and renovated butter. (Approved March 23, 1899.

Butter from melted packing stock, etc., to be branded. SECTION 1. No person, firm, corporation, agent, or employe shall manufacture, sell, offer or expose for sale, in this State, any butter that is produced by taking original packing stock butter, or other butter, or both, and melting the same so that the butter fat can be drawn off or extracted, then mixing the said butter fat with skimmed milk, or milk, or cream, or other milk product, and rechurning or reworking the said mixture, or that produced by any process that is commonly known as boiled, process or renovated butter, unless the same is branded or marked as provided in section 2 of this act.

"Renovated butter." SEC. 2. No person, firm, corporation, agent, or employe shall sell, offer or expose for sale, or deliver to purchaser, any boiled, process or renovated butter, as defined in section 1 of this act, unless the words "Renovated Butter" shall be plainly branded with Gothic or bold-faced letters at least three-fourths of an inch in length, on the top and sides of each tub or box or pail, or other kind of a case or package, or on the wrapper of prints or rolls in which it is put up. **Placard.** If such butter is exposed for sale uncovered, or not in a case or package, a placard containing the label so printed shall be attached to the mass of butter in such manner as to easily be seen and read by the purchaser.

The branding or marking of all packages shall be in the English language, and in a conspicuous place, so as to be easily seen and read by the purchaser.

Commissioner shall enforce. SEC. 3. The State Dairy and Food Commissioner and his assistants, experts, and chemists, by him appointed, shall be charged with the proper enforcement of all the provisions of this act. When complaint is made by the said Dairy and Food Commissioner, his assistants, employes, and chemists, or by any other person authorized by the said Dairy and Food Commissioner, security for costs shall not be required of the complainant in any case at any stage of the prosecution on trial.

Penalty. SEC. 4. Whoever violates any of the provisions of this act shall be deemed guilty of a misdemeanor, and shall for each offense, upon conviction thereof, be subject to a fine of not less than twenty-five dollars, nor more than fifty dollars and costs, or by imprisonment not to exceed two months.

Authority to inspect. SEC. 5. The said commissioner and his assistants, experts, chemists and agents, he shall duly authorize for the purpose, shall have access and ingress to all places of business, factories, stores, and buildings used for the manufacture or sale of butter. They also shall have power and authority to open any tub, box, pail, or other kind of case or package, containing any butter that may be manufactured, sold, or exposed for sale, in violation of the provisions of this act.

In effect. SEC. 6. This act shall take effect and be in force from and after its passage.

PROVISION OF THE PENAL CODE.

SEC. 331 (section 6625, Statutes 1894). A person who either—

Adulteration of food or drink. 1. With intent that the same may be sold as unadulterated or undiluted, adulterates or dilutes wine, milk, distilled spirits, or malt liquor, or any drug, medicine, food, or drink, for man or beast; or,

Sale of adulterated food or drink. 2. Knowing that the same has been adulterated or diluted, offers for sale or sells the same as unadulterated or undiluted, or without disclosing or informing the purchaser that the same has been adulterated or diluted, in a case where special provision has not been otherwise made by statute for the punishment of the offense,

Misdemeanor. —Is guilty of a misdemeanor.

MISSISSIPPI.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 623 and 624, for—

Laws of 1882, chapter 50 (sections 1-3).—An act to regulate the sale of oleomargarine and to promote the public health. (Approved March 9, 1882.)

Privilege taxes and other revenue laws in force 1898, chapter 5 (one section).—An act creating privilege taxes on certain industries in Mississippi, and repealing all laws in conflict with same.

Annotated Code of 1892, section 1187 (2912).—Concerning the treatment of the cow of another.

MISSOURI.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 624–627, for—

Laws of 1891, page 163 (sections 1 and 2).—An act to empower cities and towns, by ordinance, to license and regulate milk dairies and the sale of milk, and provide for the inspection thereof, and to repeal an act entitled "An act to prevent the adulteration of milk and cream in all cities that now have or may hereafter have a population of three hundred thousand inhabitants or over," approved June 14, 1889. (Approved April 18, 1891.)

Laws of 1897, page 104 (sections 1-8).—An act requiring the branding or labeling of skim-milk cheese when offered for sale. (Approved March 24, 1897.)

Revised Statutes of 1889, sections 3885 and 3886 (Revised Statutes 1899, sections 2276 and 2277).—Concerning butter and cheese substitutes.

Laws of 1895, page 26 (sections 1-12).[1]—An act prohibiting the coloring yellow of any substance designed to be used as a substitute for butter; to prohibit the manufacture, sale, keeping for sale, and fraudulent use of substances designed as imitation butter; to regulate the manufacture, sale, and keeping for sale of any substance designed to be used as a substitute for butter, and making an appropriation for carrying out the provisions of this act. (Approved April 19, 1895.)

MONTANA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 627 and 628, for—

Codes and Statutes, Penal Code, 1895, sections 684-686 and 1095, and Political Code, section 4064.—Concerning substitutes for butter and cheese, and care of cows.

NEBRASKA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 628–632, for—

Compiled Statutes, 1897, part 3, chapter 22, 6898 (section 234).—Concerning impure milk.

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[1] Appropriation for enforcing this act in years 1899 and 1900, $5,000.

Compiled Statutes, 1897, part 3, chapter 23, 6927–6940 (sections 245k–249n).—Concerning impure milk and imitations of butter and cheese.

General Laws of 1897, chapter 99 (sections 1–5).—An act to provide against the adulteration of food, prohibiting the sale, or offering for sale, of adulterated food and providing a penalty for the violation thereof. (Approved April 12, 1897.)

Recently enacted:

LAWS OF 1899, Chapter 35.[1]

AN ACT creating a Food Commission; defining its powers and duties and of the officers and agents thereof; regulating the manufacture and sale of foods including "imitation butter" and "imitation cheese" and dairy products; providing for a system of reports, inspection and permits and fixing fees for the same; providing penalties for violations of this act; making an annual appropriation for carrying this act into effect; and repealing all acts and parts of acts in conflict herewith. (Approved April 3, 1899.)

Food commission; office. SECTION 1. There is hereby created a Food Commission with headquarters at the Capitol, for which office-room, stationery, postage, expressage, printing, and other usual facilities for transacting business shall be furnished, the same as for other executive departments.

Governor is commissioner and appoints deputy; salary. SEC. 2. The Governor of this state is hereby made the Food Commissioner of said Commission. Said Food Commissioner shall have the power to appoint a Deputy Food Commissioner at a salary of Fifteen Hundred Dollars ($1500.00) per annum, payable monthly, together with his expenses actually and necessarily incurred in discharging the duties of his office.

Duties and authority. It is further provided that a complete and itemized account of all expenses shall be kept by said Deputy Food Commissioner and filed monthly with the Auditor of Public Accounts after being duly verified by him.

Said Deputy Food Commissioner shall hold his office at the pleasure of the Governor, and when acting for and instead of said Food Commissioner, shall and may exercise equal power and authority subject to the approval of said Food Commissioner.

Qualifications. The Deputy Food Commissioner so appointed shall be a person of recognized standing, experience, ability and knowledge in and concerning dairy and other food products.

Bond of deputy. SEC. 3. The said Deputy Food Commissioner shall, before entering upon the discharge of his duties, give a bond in the sum of Three Thousand ($3,000) Dollars with sureties as provided by law, to be approved by the Governor and conditioned for the faithful discharge of his duties and the accounting for all money and other property that may come into his hands by virtue of his office.

Clerk. The said Deputy Food Commissioner may employ a clerk, if found necessary, whose salary shall not exceed Seventy-five Dollars ($75) per month.

Annual report. The said Deputy Food Commissioner shall make an annual report to the Governor, same as other State officers, on or before the first day of November, of each year, giving in a concise manner, in said report, a full statement of the condition of the food and dairy interests of the State, and making such recommendations as he may deem best to improve the same, including receipts and disbursements of his office; and such report shall be printed and published and distributed same as reports of other State officers.

Duty of commission. SEC. 4. The said Food Commission, through its duly accredited officers, shall be charged with the enforcement of this act and all other acts and laws heretofore passed, or that may hereafter be passed, concerning butter, cheese, "imitation butter," "imitation cheese," milk and cream, vinegar, cider, and all laws concerning dairy products, cider or vinegar, or any imitation or adulteration thereof.

Control of milk tests and standards. The said Food Commissioner shall have control over the subject of testing milk and cream in the State of Nebraska, on the farm, in the factory, skimming station, milk or cream depot, milk or cream wagon, or any other place where milk or cream is bought or sold, and may make such regulations concerning the subject of testing milk and cream as he may deem reasonable and just, and shall have power to establish a minimum standard of butter fat in milk and cream.

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[1] Practical operations under this act have been nullified, as the salary of the deputy commissioner can not be paid, because the act contravenes a section in the constitution providing that bills making appropriations for salaries shall contain no provisions on other subjects.

Authority for inspections. **Analyses of samples.** **Penalty.**

The said Food Commission and its duly accredited officers, such as shall be duly authorized for the purpose, shall have full access, ingress, and egress to all creameries, cheese factories, skimming stations, cider manufactories, vinegar manufactories, farms, buildings, carriages, cars, vessels, packages, or cans, used in the manufacture or sale of any dairy product, cider or vinegar, or any imitation thereof. They shall also have power and authority to open any package, can, or vessel containing such dairy product, cider or vinegar, or any imitation or adulteration thereof which they may have reason to believe may be manufactured, sold, or exposed for sale in violation of the provisions of this act or other acts in relation thereto, and may inspect the contents therein, and may take therefrom samples for analysis, and have the same analyzed by a competent chemist, for which the chemist shall be allowed a reasonable fee not to exceed Five Dollars ($5.00) for each analysis, and the findings of such chemist shall be taken prima facie evidence in court, and in all prosecutions under this act when such analysis has been made and given in evidence, the said fees and expenses of the chemist making the same, shall be taxed as costs in the case, the same as other costs are taxed. All persons knowingly violating this act shall be dealt with as provided in this act.

Imitation butter and cheese, reports on wholesale sales. **Retailers not required to report.**

SEC. 5. Every person, firm, or corporation in this State manufacturing or dealing, excepting retailer in "imitation butter" or "imitation cheese" or both, shall, on or before the tenth day of each month, on blanks provided by said Food Commissioner, make a report in writing to said Food Commissioner, showing the amount of "imitation butter" or "imitation cheese" or both, sold by them during the preceding month, size of packages used, to whom and when sold, business location of the purchaser, amount of "imitation butter" or "imitation cheese" or both on hand at the close of the month's business, and such other items and facts as may be required by said Food Commissioner, verifying the same under oath and specifying particularly that they have complied with all the State laws in regard to such "imitation butter" or "imitation cheese" or both, as the case may be: *Provided*, That the retailer shall not be required to state to whom sold nor location of purchaser.

Definitions. **Manufacturers of imitations.**

SEC. 6. Every person, firm, or corporation who in any manner produces "imitation butter" or "imitation cheese" or both, as the same is now defined, or may hereafter be defined in the statutes of this State, shall be considered a manufacturer of "imitation butter" or "imitation cheese" or both.

Wholesale dealer in imitations.

Every person, firm, or corporation who sells or offers for sale or has in his possession for sale "imitation butter" or "imitation cheese" or both, as the same is now defined in the statutes of this State, or hereafter may be defined, in packages containing ten pounds or more, shall be deemed a wholesale dealer in "imitation butter" or "imitation cheese" or both, as the case may be.

Retail dealer in imitations.

Every person, firm, or corporation who sells or offers for sale or has in his possession for sale "imitation butter" or "imitation cheese" or both, as the same is now defined or may hereafter be defined in the statutes of this State, in packages containing less than ten pounds each, shall be deemed a retail dealer in "imitation butter" or "imitation cheese" or both.

Manufacturer of ladle butter.

Every person, firm, or corporation buying, reworking, and handling the product commonly known and called "store" or "dairy" butter, and making out of the same what is generally known and termed "ladle" or "factory" butter, shall be deemed a manufacturer of "ladle" butter.

Wholesale dealer in butter and cheese.

Every person, firm, or corporation buying and selling butter and cheese or both, in original packages not of his own production, whether on commission or otherwise, shall be deemed a wholesale dealer in butter or cheese or both, as the case may be.

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Creamery.

For the purposes of this act, a creamery shall be defined as "factory where cream from milk with or without the addition of salt and coloring matter is churned into butter."

Cheese factory. A cheese factory shall be defined as "a factory where milk with or without the addition of salt, rennet, and coloring matter, is manufactured into cheese."

Skimming station. A "skimming station" shall be defined as "a place where milk, from not less than five patrons, is skimmed by machinery and the cream resulting therefrom is taken to a creamery to be churned."

Permit necessary to make or sell imitations. SEC. 7. It shall be unlawful for any manufacturer, wholesale or retail dealer in "imitation butter" or "imitation cheese" or both, to enter upon or engage in the business of producing, manufacturing, handling, or having in his possession for sale, or selling "imitation butter" or "imitation cheese" or both, without first procuring from said Food Commissioner an annual permit, said permit describing the occupation and place of business of the person, firm, or corporation receiving the same, and conditioned on a faithful observance of the laws of the State by him.

Some manufacturers excepted. *Provided*, That any manufacturer of "imitation butter" or "imitation cheese" or both, who sells only "imitation butter" or "imitation cheese" or both, of his own production at the place of manufacture in the original packages shall not be required to take out a permit as a wholesaler.

Permit required to make ladle butter or to make or sell butter or cheese. It shall be unlawful for any person, firm, or corporation to manufacture "ladle" butter or to carry on the business of manufacturing "ladle" butter or to carry on business as a wholesale dealer in butter or cheese or both * * * or to operate any creamery or cheese factory or skimming station, or to do any business in producing, manufacturing, handling, or selling the product so made, without first procuring from said Food Commissioner an annual permit, said permit describing the occupation and place of business of the person, firm, or corporation receiving the same and conditioned on a faithful observance of the laws of the State by him.

Applications for permits. All applications for permits under this act shall be in writing addressed to the said Food Commissioner, verified by the applicant, stating that after this act shall become a law he has not violated any of the provisions of this act.

Authority for inspections. It is further provided that the said Food Commission through its accredited officers shall have the right at any and all times to inspect the premises, methods, and processes of any creamery, cheese factory, skimming station, station, manufacturer of ladle butter, wholesale dealer in butter or cheese or both, * * * manufacturer of "imitation butter" or "imitation cheese" or both, wholesale dealer or retail dealer in "imitation butter" or "imitation cheese" or both, within this State, within the provisions of this act or other acts relating to dairy products, cider or vinegar, or any imitation or adulteration thereof.

Charge for permits and inspections. SEC. 8. For said permits and the services performed in connection therewith, including the inspection as provided by this act, there shall be charged and collected annually as follows: From each manufacturer of "imitation butter" or "imitation cheese" the sum of One Hundred Dollars ($100.00); from each wholesale dealer in "imitation butter" or "imitation cheese," Fifty Dollars ($50.00); from each retail dealer in "imitation butter" or "imitation cheese," Twenty-five Dollars ($25.00); * * * from each creamery, Ten Dollars ($10.00); from each cheese factory, Ten Dollars ($10.00); from each skimming station, One Dollar ($1.00); from each manufacturer of "ladle" butter, Fifteen Dollars ($15.00); and from each wholesale dealer in butter or cheese, Ten Dollars ($10.00), payable in each and every case into the Treasury of the State of Nebraska, as provided by law, in advance of the issuance of said permit.

Revocation of permit for violation. SEC. 9. If any person, firm, or corporation to whom such permit has been issued shall be convicted of a wilful violation of any of the provisions of this act, such conviction shall thereupon "ipso facto" work a revocation of such permit and the same shall hereafter be held and deemed null and void.

County attorneys to prosecute. SEC. 10. It shall be the duty of all county attorneys on request of the Food Commissioner to represent and prosecute, on behalf of the State within their respective counties, all offenses arising under the provisions of this act.

Penalty. SEC. 11. Any person, firm, or corporation violating any provision of this act shall be deemed guilty of a misdemeanor and on conviction thereof shall be punished for each offense by a fine of not less than Ten Dollars ($10.00) nor more than One Hundred Dollars ($100.00), in the discretion of the court. It is further provided that each day's failure in taking out the permit described above, shall constitute in each of the above cases a separate and distinct offense.

Appropriation. SEC. 12. There is hereby annually appropriated out of the funds of the State not otherwise appropriated, for the purpose of carrying into effect the provisions of this act, the sum of Five Thousand Dollars ($5,000.00): *Provided*, That the amount paid out shall in no case exceed the amount received by the State, as provided for in this act.

Repeal. SEC. 13. All acts and parts of acts in conflict herewith are hereby repealed.

NEVADA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 632 and 633, for—

General Statutes, 1885 (Baily and Hammond), 4801–4805 (sections 1–5).—An act to prevent the adulteration of milk and to prevent traffic in impure and unwholesome milk. (Approved February 17, 1879. 36.)

General Statutes, 1885 (Baily and Hammond), 4806–4809 (sections 1–4), Supplement.—Concerning milk inspector. (Approved February 26, 1881. 79.)

General Statutes, 1885 (Baily and Hammond), 4810–4812 (sections 1–3).—An act to punish and prevent deception in the manufacture and sale of butter. (Approved February 4, 1881. 24.)

NEW HAMPSHIRE.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 633–636, for—

Public Statutes, 1891, chapter 127 (sections 1–24).—Concerning milk inspectors, licenses, milk standards, etc.

Laws of 1893, chapter 37 (sections 1 and 2).—An act in amendment of chapter 127 of the Public Statutes relating to the sale of adulterated butter, oleomargarine, and imitation cheese. (Approved March 23, 1893.)

Laws of 1895, chapter 115 (sections 1–4).—An act in amendment of chapter 127 of the Public Statutes relating to the sale of adulterated butter, oleomargarine, and imitation cheese. (Approved March 29, 1895.)

Recently enacted:

LAWS OF 1899, Chapter 58.

AN ACT providing additional duties for the State Board of Agriculture. (Approved March 9, 1899.)

State board of agriculture shall enforce. SECTION 1. It shall be the duty of the State board of agriculture to cause the provisions of chapter 115 of the laws of 1895 relating "to the sale of adulterated butter, oleomargarine, and imitation cheese," to be enforced.

NEW JERSEY.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 636–650, for—

Public Laws of 1865, chapter 275 (section 1). (=General Statutes, 1895, Dairy, section 3).—An act to protect butter and cheese manufacturers. (Approved March 23, 1865.)

Public Laws of 1882, chapter 82 (sections 1–11). (=General Statutes, 1895, Dairy, sections 33–43).—An act to prevent the adulteration and to regulate the sale of milk. (Approved March 14, 1882.)

Public Laws of 1884, chapter 90 (sections 1-5). (=General Statutes, 1895, Dairy, sections 44-48.)—Supplement.—Concerning trial by jury. (Approved April 2, 1884.)

Public Laws of 1886, chapter 186 (1 section.) (=General Statutes, 1895, Dairy, section 49.)—Supplement.—Concerning dairy commissioner. (Approved February 20, 1886.)

Public Laws of 1887, chapter 2 (1 section). (=General Statutes, 1895, Dairy, section 50.)—Supplement.—Concerning milk analysis. (Approved February 24, 1887.)

Public Laws of 1888, page 461 (section 2) (=General Statutes, 1895, Agriculture, section 81).—An act to provide for the construction of a State laboratory for the State Agricultural Experiment Station. (Approved April 23, 1888.)

Public Laws of 1891, chapter 210 (sections 1-4) (=General Statutes, 1895, Dairy, sections 51-54). Supplement.—Concerning milk testing. (Approved April 14, 1891.)

Public Laws of 1883, chapter 185 (sections 1 and 2) (=General Statutes, 1895, Dairy, sections 65 and 66).—An act to prohibit the sale of adulterated and skimmed milk in cities of this State. (Approved March 23, 1883.)

Public Laws of 1883, chapter 68 (sections 1-10) (=General Statutes, 1895, Dairy, sections 55-64).—An act for the protection of producers and shippers of milk. (Approved March 8, 1883.)

Public Laws of 1891, chapter 257 (sections 1-7) (=General Statutes, 1895, Dairy, sections 67-73).—An act in relation to milk cans. (Approved April 16, 1891.)

Public Laws of 1864, chapter 370 (sections 1 and 2) (=General Statutes, 1895, Dairy, sections 1 and 2).—An act to regulate the tare of butter and cheese firkins, tubs, and vessels. (Approved April 7, 1864.)

Public Laws of 1886, chapter 84 (sections 1-20) (=General Statutes, 1895, Dairy, sections 4-22).—An act to prevent deception in the sale of oleomargarine, butterine, or any imitation of dairy products, and to preserve the public health. (Approved March 22, 1886.)

Public Laws of 1887, chapter 149 (sections 1-6) (=General Statutes, 1895, Dairy, sections 23-28). Supplement.—Concerning oleomargarine and additional duties of dairy commissioner. (Approved April 21, 1887.)

Public Laws of 1895, chapter 332 (sections 1 and 2) (=General Statutes, 1895, Dairy, sections 29 and 30). Supplement.—Concerning imitation butter. (Approved March 25, 1895.)

Public Laws of 1895, chapter 418 (sections 1 and 2) (=General Statutes, 1895, Dairy, sections 31 and 32).—An act relative to the dairy commissioner. (Approved June 13, 1895.)

Public Laws of 1893, chapter 207 (sections 1-4) (=General Statutes, 1895, animals, sections 113-115).—Supplement to an act entitled "An act concerning contagious and infectious diseases among animals, and to repeal certain acts relating thereto," approved April 4, 1886. (Approved March 16, 1893.)

Public Laws of 1881, page 283 (sections 1-8) (=General Statutes, 1895, Dairy, sections 74-81).—An act to prevent the adulteration of food or drugs. (Approved March 25, 1881.)

Public Laws of 1883, page 185 (sections 1-10) (=General Statutes, 1895, Dairy, sections 82-90). Supplement.—Concerning adulterated food and inspectors. (Approved March 23, 1883.) [Section 7 of this act is repealed by section 2 of Public Laws of 1895, chapter 418] (=General Statutes, 1895, Dairy, sections 31 and 32.)

Public Laws of 1897, supplement to chapter 93 (sections 1 and 2).—Concerning food samples. (Approved April 8, 1897.)

Public Laws of 1887, chapter 126, page 160 (sections 1 and 2) (=General Statutes 1895, Dairy, section 91). Supplement.—Concerning enforcement of the law. (Approved April 11, 1887.)

Additional:

LAWS OF 1894, Chapter 317.

SUPPLEMENT to an act entitled "An act concerning contagious and infectious disease among animals and to repeal certain acts relating thereto," approved May fourth, one thousand eight hundred and eighty-six. (Approved May 22d, 1894.)

Investigation of tuberculosis by a commission. SECTION 1. That the president of the State board of agriculture shall appoint five persons, citizens and taxpayers of this State, who, together with himself and the secretary of the State board of agriculture, shall constitute a commission who shall, at the request of two members of the State board of health or the State dairy commissioner or any owner of suspected animals, investigate the existence of tuberculosis, or cause the same to be investigated, and if any such disease is found to exist, to enforce such regulations in relation to the same as the said commission may adopt. **Regulations.**

Payment for condemned animals. SEC. 2. That when any animal or animals shall be slaughtered by direction of said commission, the value of the same shall be ascertained and appraised by three disinterested freeholders, resident in this State, who shall make and sign certificates thereof in the presence of a witness who shall attest the same; such appraisement shall be made on the basis of the market value of the animal or animals slaughtered, just prior to the time when they became so diseased, and shall be limited to the sum of one hundred dollars for registered animals and to forty dollars to all others; one-half of the valuation so ascertained shall be paid by the State on the presentation of such certificate, with the approval of the said commission indorsed thereon, to the owner or owners.

Annual report. SEC. 3. That it shall be the duty of said commission to keep a full and complete record of all their proceedings under this act, and report the same annually to the State board of agriculture, and such a report shall be printed in and form a part of the annual report of the State board of agriculture.

Appropriation. SEC. 4. That the sum of five thousand dollars is hereby annually appropriated to said commission to defray its expenses and the value of the cattle to be slaughtered by its direction: *Provided*, That no other compensation shall be allowed said commission than the expenses actually incurred in the execution of the duties hereby imposed.

Payment of bills. SEC. 5. That all bills for money expended under this act shall be audited by the comptroller of this State and then submitted to the governor for his approval, and after being thus audited and approved by the governor shall be paid by the State treasurer upon the warrant of the comptroller.

In effect. SEC. 6. That this act shall be deemed a public act and shall take effect immediately.

NEW MEXICO.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 650–652, for—

Compiled Laws of 1897, sections 1244, 1246, and 1248–1257.—Concerning foods and drugs.

Compiled Laws of 1897, title 28, chapter 2, section 2402.—Concerning sales and inspection of provisions.

NEW YORK.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 652–658, for—

Laws of 1893, chapter 338 (chapter 33 of the General Laws, article 1, sections 1–12, and article 2, sections 20–37).—An act in relation to agriculture, constituting articles 1, 2, 3, 4, and 5 of chapter 33 of the General Laws. (Approved April 10, 1893.)

Sections recently amended and added:

Samples, after mixing, to be in duplicate. SEC. 12 (as amended by section 1 of chapter 557 of the laws of 1898). When the commissioner of agriculture, an assistant commissioner, or any person or officer author-

Later sample for comparison.

ized by the commissioner, or by this chapter, to examine or inspect any product manufactured or offered for sale shall in discharge of his duties take samples of such product, he shall, before taking a sample, request the person delivering the milk or who has charge of it at the time of inspection, to thoroughly stir or mix the said milk before the sample is taken. If the person so in charge refuses to stir or mix the milk as requested, then the person so requesting shall himself so stir and mix the milk before taking the sample, and the defendant shall thereafter be precluded from introducing evidence to show that the milk so taken was not a fair sample of the milk delivered, sold, offered or exposed for sale by him. The person taking the sample of milk for analysis shall take duplicate samples thereof in the presence of at least one witness, and he shall in the presence of such witness seal both of such samples, and shall tender, and, if accepted, deliver at the time of taking one sample to the manufacturer or vendor of such product, or to the person having custody of the same, with a statement in writing of the cause of the taking of the sample. In taking samples of milk for analysis at a creamery, factory, platform, or other place where the same is delivered by the producer for manufacture, sale, or shipment, or from a milk vendor who produces the milk which he sells, with a view of prosecuting the producer of such milk for delivering, selling, or offering for sale adulterated milk, the said commissioner of agriculture or assistant, or his agent or agents, shall within ten days thereafter, with the consent of the said producer, take a sample in a like manner of the mixed milk of the herd of cows from which the milk first sampled was drawn and shall deliver the duplicate sample to the said producer and shall cause the sample taken by himself or his agent to be analyzed. If the sample of milk last taken by the commissioner of agriculture or his agent or agents shall upon analysis prove to contain no higher percentage of milk solids, or no higher percentage of fat than as the sample taken at the creamery, factory, platform, or other place, then no action shall lie against the said producer for violation of subdivisions one, two, three, seven, and eight of section twenty of the agricultural law. In taking a second sample as above set forth from the mixed milk of the herd, it shall be the duty of the commissioner of agriculture to have an assistant, agent, or agents present during the entire time in which the said cattle are being milked to observe closely so as to be sure that the milk thus to be sampled is not adulterated and to see that it is thoroughly mixed so that the sample taken shall be a fair sample of the average quality of the mixed milk of the entire dairy or herd of cows of said producer. If, however, the said producer refuses to allow such examination of the milk produced by his dairy, then he shall be precluded from offering any evidence whatever tending to show that the milk delivered by him at the said creamery, factory, platform, or other place was just as it came from the cow. If the said producer does permit such examination, the commissioner of agriculture shall, upon receiving application therefor, send to said producer a copy of the analysis of each of the samples of milk so taken and analyzed as above provided.

Imitations not to be sold as butter or cheese.

Coloring oleomargarine, etc., prohibited.

Butter from original packing stock, etc., to be labeled "Renovated butter."

SEC. 27 (as amended by section 1 of chapter 149 of the laws of 1899). No person shall manufacture, mix, or compound with or add to natural milk, cream, or butter any animal fats or animal or vegetable oils, nor make or manufacture any oleaginous substance not produced from milk or cream, with intent to sell the same as butter or cheese made from unadulterated milk or cream or have the same in his possession with such intent; nor shall any person solicit or take orders for the same or offer the same for sale, nor shall any such article or substance or compound so made or produced be sold as and for butter or cheese, the product of the dairy. No person shall coat, powder, or color with annotto or any coloring matter whatever butterine or oleomargarine or any compound of the same or any product or manufacture made in whole or in part from animal fats or animal or vegetable oils not produced from unadulterated milk or cream by means of which such product, manufacture, or compound shall resemble butter or cheese, the product of the dairy; nor shall he have the same in his possession with intent to sell the same nor shall he sell or offer to sell the same. No person by himself, his agents, or employes shall manufacture, sell, offer or expose for sale butter that is produced by taking original packing stock or other butter or both and melting the same, so that the butter fat can be drawn off, then mixing the said butter fat with skimmed milk or milk or cream or other milk product and rechurning the said mixture, or that is produced by any similar process and is commonly known as boiled or process butter, unless he shall plainly brand or mark the package or tub or wrapper in which the same is put up in a conspicuous place with the words "renovated butter." If the same shall be put up, sold, offered or exposed for sale in prints or rolls, then the said prints or rolls shall be labeled plainly with printed letters in a conspicuous place on the wrapper with the words "renovated butter." If the same is packed in tubs or boxes or pails or other kind of a case or package, the words "renovated butter" shall be printed on the top and side of the same in letters, at least one inch in length, so as to be plainly seen by the purchaser. If such butter is exposed for sale, uncovered, not in a package or case, a placard containing the label so printed shall be attached to the mass of butter in such manner as to easily be seen and read by the purchaser. **Preservatives prohibited.** No person shall sell, offer or expose for sale, any butter or other dairy product containing a preservative, but this shall not be construed to prohibit the use of salt in butter or cheese, or spiritous liquors in club or other fancy cheese or sugar in condensed milk.

Manufacture, sale, and use of poisonous coloring matter prohibited.

SEC. 29a (as added by section 1 of chapter 518 of the laws of 1899). No person or persons shall manufacture, sell or expose for sale any poisonous coloring matter for the coloring of food products of any kind, nor shall any person or persons use any poisonous coloring matter manufactured, sold, offered or exposed for sale within this State; nor shall any person or persons sell, offer or expose for sale any food product containing such poisonous coloring matter. **Analysis.** The State board of health shall cause samples of coloring matter that are exposed for sale upon the market for use in food products to be analyzed and report the results of such analysis to the legislature at the next session.

Brands for full-milk cheese.

SEC. 33 (as amended by section 1 of chapter 559 of the laws of 1898). Every manufacturer of full-milk cheese may put a brand upon each cheese indicating "full-milk cheese," and the date of the month and year when made; and no person shall use such a brand upon any cheese made from milk from which any of the cream has been taken. The commissioner of agriculture shall procure and issue to the cheese manufacturers of the State, on proper application therefor, and under such regulations as to the custody and use thereof as he may prescribe, a uniform stencil brand, bearing a suitable device or motto, and the words, "New York State full-cream cheese." Every such brand shall be used upon the outside of the cheese and shall bear a different number for each separate factory. The commissioner shall keep a book, in which shall be registered the name, location, and number of each manufactory using the brand and the name or names of the persons at each manufactory authorized to use the same. No such brand shall be used upon any other than full-cream cheese or packages containing the same.

Penalties and violations.

SEC. 37 (as amended by section 1 of chapter 554 of the laws of 1897, and by chapter 558 of the laws of 1898, and by section 1 of chapter 435 of the laws of 1899). Every person violating any of the provisions of articles two and three and sections ninety-one and ninety-two of the agricultural law and chapter four hundred and ninety-one of the laws of eighteen hundred and ninety-eight, shall forfeit to the people of the State of New York a sum not less than twenty-five dollars nor more than one hundred dollars for every such violation. When such violation consists of the manufacture or production of any prohibited article, each day during which or any part of which such manufacture or production is carried on or continued, shall be deemed a separate violation of the provisions of this article. When the violation consists of the sale, or the offering or exposing for sale or exchange, of any prohibited article or substance, the sale of each one of several packages shall constitute a separate violation, and each day on which any such article or substance is offered or exposed, for sale or exchange, shall constitute a separate violation of this article. When the use of any such article or substance is prohibited, each day during which or any part of which said article or substance is so used or furnished for use, shall constitute a separate violation, and the furnishing of the same for use to each person to whom the same may be furnished shall constitute a separate violation. Whoever by himself or another violates any of the provisions of articles two and three and sections ninety-one and ninety-two of the agricultural law shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five dollars, nor more than two hundred dollars, or by imprisonment of not less than one month nor more than six months or by both such fine and imprisonment, for the first offense; and by six months' imprisonment for the second offense.

NORTH CAROLINA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 658 and 659, for—

Public Laws of 1895, chapter 106 (sections 1-6).—An act defining butter and to regulate the sale thereof. (Ratified February 28, 1895.)

[Public Laws of 1895, chapter 122, was repealed by section 12 of the following.]

Recently enacted:

PUBLIC LAWS OF 1899, Chapter 86.

AN ACT to prevent the sale of adulterated and unbranded food, and to amend and make more effective the provisions of Chapter 122, Laws of 1895. (Ratified Feb 13, 1899.)

Board of Agriculture to have foods, beverages, and condiments examined and publish results.

SECTION 1. That for the purpose of protecting the people of the State from imposition by the adulteration and misbranding of articles of food, the Board of Agriculture shall cause to be procured from time to time, and under rules and regulations to be prescribed by them, in accordance with section nine of this act, samples of food, beverages, and condiments offered for sale in the State, and shall cause the same to be analyzed or examined microscopically or otherwise by the chemists or other experts of the Department of Agriculture. The Board of Agriculture is hereby authorized to make such publications of the results of the examinations, analyses, and so forth as they may deem proper.

Adulterated foods prohibited. **Penalty.** **Disposition of fines.**

SEC. 2. That no person, by himself or agent, shall knowingly manufacture, sell, expose for sale, or have in his possession with intent to sell, any article of food which is adulterated or misbranded within the meaning of this act; and any person who shall violate any of the provisions of this act shall be guilty of a misdemeanor, and for such offense shall be fined not exceeding two hundred dollars for the first offense, and for each subsequent offense not exceeding three hundred dollars or be imprisoned not exceeding one year, or both, in the discretion of the Court; and such fines, less legal costs and charges, shall be paid into the treasury of the State for the benefit of the Department of Agriculture, to be used exclusively in executing the provisions of this act.

Chemists of Department of Agriculture to make examinations.

SEC. 3. That the chemists or other experts of the Department of Agriculture shall make, under rules and regulations prescribed by the Board of Agriculture, examinations of specimens of food, beverages, and condiments offered for sale in North Carolina which may be collected from time to time under their directions in various parts of the State. If it shall appear from such examination that any of the provisions of this act have been violated, the Commissioner of Agriculture shall at once certify the facts to the proper solicitor, and furnish that officer a copy of the result of the analysis duly authenticated by the analyst under oath.

Solicitors shall prosecute.

SEC. 4. That it shall be the duty of every solicitor to whom the Commissioner of Agriculture shall report any violation of this act, to cause proceedings to be commenced and prosecuted without delay for the fines and penalties in such cases provided.

"Food" and "misbranded" defined.

SEC. 5. That the term "food" as used herein shall include all articles used for food—candy, condiment, or drink, by man or domestic animals, whether simple, mixed, or compound. The term "misbranded" as herein used shall include all articles of food or articles which enter into the composition of food, the package or label of which shall bear any statement purporting to name any ingredients or substances as being contained or not being contained in such article, which statement shall be false in any particular.

Adulteration defined.

SEC. 6. That for the purpose of this act an article of food shall be deemed adulterated—

First. If any substance or substances has or have been mixed or packed with it, so as to reduce or lower or injuriously affect its quality or strength so that such product when offered for sale shall deceive or tend to deceive the purchaser.

Second. If any inferior substance or substances has or have been substituted wholly or in part for the article so that the product when sold shall deceive or tend to deceive the purchaser.

Third. If any valuable constituent of the article has been wholly or in part abstracted so that the product when sold shall deceive or tend to deceive the purchaser.

Fourth. If it be an imitation of, and sold under the specific name of, another article.

Fifth. If it be mixed, colored, powdered, coated, polished, or stained in a manner whereby damage or inferiority is concealed, so that such product when sold shall deceive or tend to deceive the purchaser.

Sixth. If it contain any added poisonous ingredient or any ingredient which may render such article injurious to the health of the person consuming it.

Seventh. If it be labeled or branded so as to deceive or mislead the purchaser, or purport to be a foreign product when branded so, or in an imitation either in package or label of an established proprietary product, which has been trade-marked or patented.

Eighth. If it consists of the whole or any part of a diseased, filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal or of an animal that has died otherwise than by slaughter.

Exceptions.

Ninth. That candies and chocolate may be deemed to be adulterated if they contain terra alba, barytes, talc, chrome yellow, or other mineral substances, or poisonous colors or flavors, or other ingredients deleterious or detrimental to health: *Provided*, That an article of food, beverage, or condiment which does not contain any added poisonous ingredient shall not be deemed to be adulterated in the following cases:

First. In the case of articles, mixtures, or compounds which may be now, or from time to time hereafter, known as articles of food, beverages, or condiments under their own distinctive names, and not included in definition fourth of this section.

Second. In the case of articles labeled, branded, or tagged so as to plainly indicate that they are mixtures, compounds, combinations, imitations, or blends.

Labels required.

Third. When any matter or ingredient has been added to the food, beverage, or condiment because the same is required for the production or preparation thereof as an article of commerce, in a state fit for carriage or consumption, and not fraudulently to increase the bulk, weight, or measure of the food, beverage, or condiment, or conceal the inferior quality thereof: *Provided*, That the same shall be labeled, branded, or tagged as prescribed by the Board of Agriculture, so as to show them to be compounds and the exact character thereof: *And provided further*, That nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods to disclose their trade formulas except in so far as the provisions of this act may require to secure freedom from adulteration or imitation: *Provided further*, That nothing in this act shall be construed to apply to proprietary or patent medicines.

No conviction if purity was guaranteed to defendants.

Fourth. Where the food, beverage, or condiment is unavoidably mixed with some harmless extraneous matter, in the process of collection or preparation; *Provided further*, That no person shall be convicted under the provisions of this act when he is able to prove a written guaranty of purity in a form approved by the Board of Agriculture as published in their rules and regulations, signed by the wholesale jobber, manufacturer, or other party from whom he purchased said article.

Compound products to be branded.

SEC. 7. That the Board of Agriculture is hereby authorized to cause all compound, mixed, or blended products to be properly branded and prescribe how this shall be done.

Exempted articles to be published.

Food standards to be fixed by Board of Agriculture.

SEC. 8. That it shall the duty of the Board of Agriculture to prepare and publish from time to time lists of the articles, mixtures, or compounds declared to be exempt from the provisions of this act in accordance with section six. The Board of Agriculture shall also from time to time fix and publish the limits of variability permissible in any article of food, beverage, or condiment, and these standards when so published shall remain the standards before all courts: *Provided*, That when standards have been or may be fixed by the Secretary of Agriculture of the United States, they shall be accepted by the Board of Agriculture and published as the standards for North Carolina.

Samples for analysis. SEC. 9. That every person who exposes for sale or delivers to a purchaser any condiment, beverage, or article of food shall furnish, within business hours, and upon tender and full payment of the selling price, a sample of such condiments, beverages, or articles of food to any person duly authorized by the Board of Agriculture to secure the same and who shall apply to such manufacturer or vender or person delivering to a purchaser such beverage or article of food, for such sample for such use in sufficient quantity for the analysis of such article or articles in his possession.

Hindrance, etc., a misdemeanor. SEC. 10. That any manufacturer or dealer who refuses to comply upon demand with the requirements of section nine of this act, or any manufacturer, dealer, or person who shall impede, obstruct, hinder, or otherwise prevent or attempt to prevent any chemist, inspector, or other person in the performance of his duty in connection with this act shall **Penalty.** be guilty of a misdemeanor and shall upon conviction be fined not less than ten dollars nor more than one hundred dollars, or be imprisoned not more than one hundred days, or both, in the discretion of the Court, and said fines, less the legal costs, shall be paid into the treasury of the State for the benefit of the Department of Agriculture, to be used exclusively in executing the provisions of this act.

Act not to interfere with commerce. SEC. 11. That this act shall not be construed to interfere with commerce, or any interstate commerce laws of the United States.

Repeal. SEC. 12. That chapter one hundred and twenty-two, Public Laws of one thousand eight hundred and ninety-five, be and the same is hereby repealed.

In effect. SEC. 13. That this act shall be in force from the first day of August, one thousand eight hundred and ninety-nine.

NORTH DAKOTA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 660 and 661, for:

Laws of 1895, chapter 49, sections 1-12.—An act entitled "An act to protect dairy interests of the State of North Dakota, and to prevent fraud in dairy products, and to regulate traffic in adulterated butter and cheese." (Approved March 16, 1895.) [Most, if not all, of this act appears to be replaced by the following.]

Recently enacted:

LAWS OF 1899, Chapter 72.

AN ACT to regulate the manufacture and sale of dairy products and imitations and substitutes therefor, prescribing penalties for violations, to create a deputy commissioner of agriculture, prescribing his duties, and fixing his salary. (Approved March 9, 1899.)

Assistant dairy and food commissioner; qualifications. SECTION 1. In order to secure the better enforcement of the provisions of this act, and to promote the improvement of the products of the dairy, the commissioner of agriculture, by and with the advice and consent of the governor, shall appoint one deputy in his department to be known officially as assistant dairy and food commissioner, who shall have a practical knowledge of and experience in the manufacture of dairy products, and hold his office during the term of the commissioner of agriculture, subject to removal from office for inefficiency, neglect, or violation of duty. The said assistant commissioner **Salary and duties.** shall receive a salary of six hundred dollars per annum and his actual and necessary expenses in the discharge of his duties under this act, and shall be charged under the direction of the commissioner of agriculture with the enforcement of the various provisions thereof.

Appropriation. The sum of one thousand dollars annually is hereby appropriated, to which shall be added the amount in fines collected in the enforcement of the provisions of this act, to be paid for such purposes out of any moneys in the treasury not otherwise appropriated, and any money so appropriated not expended in the enforcement of the provisions of this act shall revert to the State school fund. All charges, accounts and expenses authorized by this act shall be paid by the treasurer of the State upon the warrant of the State auditor. The entire expense of said assistant commissioner shall not exceed the sum appropriated for the purpose of this act.

Biennial Report.

SEC. 2. The biennial report of commissioner of agriculture shall contain a detailed report of the work and proceedings, together with an account of expenses and disbursement of said assistant commissioner, since the preceding report, with such facts and statistics in regard to the production, manufacture, and sale of daily products with such suggestions as he may regard of public importance connected therewith.

Authority for inspecting.

Assistance from others.

SEC. 3. The said assistant commissioner and such persons as shall be duly authorized for the purpose shall have access, ingress, and egress to all places of business, factories, farms, buildings, carriages, cars, vessels, and cans used in the manufacture and sale of any dairy products or any imitation thereof. They also shall have power and authority to open any package, can, or vessel containing such articles which may be manufactured, sold, or exposed for sale in violation of the provisions of this act, and may inspect the contents therein and may take samples therefrom for analysis. All clerks, book-keepers, express agents, railroad officials, employes, or common carriers shall render to them any assistance in their power when so requested, in tracing, finding, or discovering the presence of any prohibited article named in this act.

Refusal to aid a misdemeanor.

Penalty.

SEC. 4. Any refusal or neglect on the part of such clerks, book-keepers, express agents, railroad officials, common carriers, or employes to render such friendly aid shall be deemed a misdemeanor and be punished by a fine of not less than twenty dollars nor more than fifty dollars for each and every offense.

Annual reports from creameries, venders, etc.

SEC. 5. The said assistant commissioner shall provide blanks which shall be furnished to all proprietors or managers of creameries, cheese factories, and all the venders or peddlers of milk who shall be licensed under the provisions of this act, for the purpose of making a report of the amount of milk and dairy goods handled and all owners or managers of such creameries, cheese factories, and venders or peddlers of milk, shall on the first day of November of each year, send to the assistant dairy and food commissioner a full and accurate report of the amount of business done during the year as designated under the different headings of such printed blanks.

False reports.

Penalty.

SEC. 6. Any neglect or failure or false statement on the part of any owner or manager of such creamery, cheese factory, or any vender or peddler of milk shall be consider a misdemeanor and be punished by fine of not less than ten nor more than fifty dollars.

Creameries and cheese factories to use brands.

Brands to be registered.

Penalty for violation.

SEC. 7. Every creamery, cheese factory, or combined creamery and cheese factory engaged in the manufacture of butter and cheese shall procure a stencil or brand bearing a suitable device and words which shall clearly designate the quality of the product manufactured, and the number and location of the factory, and may contain a special or private brand or name of said factory; every brand shall be used upon the outside of the cheese and also upon the package containing the same, but in the case of butter on the package only and shall on the first day of November of each year report to the assistant dairy and food commissioner the name, location, and number of each factory using said brand, and the name or names of the persons at each factory authorized to use the same together with a copy of each stencil or brand and the said assistant commissioner shall keep a book in which shall be registered the same. Any neglect or failure to comply with the provisions of this section shall be considered a misdemeanor and shall be punishable by a fine of not less than ten dollars and not more than fifty dollars for each and every offense.

Milk peddlers shall be licensed.

SEC. 8. Every person who sells milk from a dairy of five or more cows, and conveys the same in carriages, carts, or other vehicles for the purpose of such sale, in any city or town of one thousand inhabitants or more, in the State of North Dakota shall on the first day of June of each year, or within thirty days thereafter be licensed by the assistant dairy and food commissioner to sell milk within the limits of said city or town, and shall pay to the said assistant commissioner the sum of one dollar each to the use of said dairy and food commissioner. But any person desiring to engage in such dairy business shall first procure a license as aforesaid which shall be valid until the first day of June next succeeding the issue. Licenses shall be used only in the names of the owners of carriages, carts, and other vehicles, and shall, for the purpose of the act, be conclusive evidence of ownership. No license shall be sold, assigned, or transferred.

Data on licenses. **Vehicles to be marked.**

Each license shall record the name, residence, place of business, number of carriages, carts, or other vehicles used, the name and residence of every driver or other persons engaged in selling said milk, and the number of the license. Each licensee shall, before engaging in the sale of milk, cause his name, the number of his license, and place of business to be legibly placed on each outer side of all carriages, carts, or other vehicles used by him in the conveyance and sale of milk, and he shall report to the said assistant commissioner any change of driver or other persons employed by him which may occur during the term of his license.

Penalty for violation.

Whoever without being first licensed under the provisions of this section, sells milk, or exposes it for sale from carriages, carts, or other vehicles, or has in his custody or possession with intent to sell, and whoever violates any of the provisions of this section, shall be punished by a fine of not less than ten dollars and not more than fifty dollars for each and every offense.

Stores, etc., to be licensed. **Penalty for violation.**

SEC. 9. Every person before selling milk or offering it for sale in a store, booth, stand, or market place in the respective towns or cities as designated in this act shall procure a license from the assistant dairy and food commissioner and shall pay to said assistant commissioner the sum of one dollar. Whoever neglects to procure said license shall be deemed guilty of a misdemeanor and shall be punished by a fine not exceeding twenty dollars for each and every offense.

Disposal of impure milk prohibited. **Care of cows regulated.** **Impure cream forbidden.** **Skimmed milk cheese to be labeled.** **Penalty for violation.**

SEC. 10. If any person shall sell, exchange, or expose for sale or exchange, or to be converted into any product of human food any unclean, unhealthy, adulterated, unwholesome, or skimmed milk, or milk from which has been held back what is commonly known as strippings, or milk taken from an animal having disease, sickness, ulcers, abscess, or running sores, or which has been taken from an animal within 15 days before or 5 days after parturition; or if any person having cows for the purpose of producing milk or cream for sale shall stable them in an unhealthy place or crowded manner, or shall knowingly feed them food which produces impure, unwholesome milk, or upon any substance in a state of putrefaction or rottenness or of unhealthy nature, or shall sell or offer for sale cream which has been taken from milk the sale of which has been prohibited, or shall sell or offer for sale as cream an article which shall contain less than the amount of butter fat as prescribed in this act; or if any person shall sell or offer for sale any cheese manufactured from skimmed milk, or from milk that is partly skimmed without the same being plainly branded, stamped, or marked on the side or top of both cheese and package in a durable manner in the English language the words, "skimmed milk cheese," the letters of the words to be not less than one inch in height and one-half inch in width—he shall be fined not less than twenty nor more than fifty dollars; but the provisions of this section shall not apply to skimmed milk when sold as such and in the manner and subject to the regulations prescribed in this act.

Adulteration of milk defined. **Milk standard.** **Cream standard.**

SEC. 11. For the purpose of this act the addition of water or any other substance or thing to whole milk, or skimmed milk, or partially skimmed milk is hereby declared an adulteration, and milk which is obtained from animals fed upon any substance of an unhealthy nature, is hereby declared impure and unwholesome, and milk which has been proved by any reliable method or test or analysis to contain less than twelve per cent of milk solids to the hundred pounds of milk, or than three pounds of butter fat to one hundred pounds of milk shall be regarded as skimmed or partially skimmed milk, and every article not containing fifteen per cent or more of butter fat shall not be regarded as cream.

Dairy inspection.

It is hereby made the duty of the assistant dairy and food commissioner to inspect such dairies as he shall deem necessary and enforce the provisions of the two preceding sections.

Imitations of yellow butter prohibited.

SEC. 12. No person by himself or his agents or servants shall render or manufacture, sell, offer for sale, expose for sale, take orders for the future delivery of, have in his possession, keep in storage, distribute, deliver, transfer, or convey with intent to sell within this State any article, product, or compound made wholly or partly out of any fat, oil, or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, which shall be imitation of yellow butter produced from pure unadulterated milk or cream of the same.

Oleomargarine permitted.

Provided, that nothing in this act shall be construed to prohibit the manufacture or sale of oleomargarine in a separate and distinct form, and in such manner as will advise the consumer of its real character free from coloration or ingredient that causes it to look like butter.

Penalty.

Whoever violates any of the provisions of this section shall be punished by a fine of not less than twenty-five dollars nor more than one hundred dollars for each and every offense.

Brand for oleomargarine, etc., required.

Penalty.

SEC. 13. Whoever exposes for sale oleomargarine, butterine, or any substance made in imitation or semblance of pure butter in tubs, firkins, or other original packages not distinctly, legibly, and durably branded, stamped, or marked in a conspicuous place with the word "oleomargarine" or "butterine" or "imitation butter," as the case may be, in letters not less than one inch in length and one-half inch in width, or in retail packages not plainly and conspicuously labeled with said words "oleomargarine" or "butterine" or "imitation butter," as the case may be, shall be deemed guilty of a misdemeanor and punished by a fine of not less than twenty-five dollars nor more than one hundred dollars for each and every offense.

"Process" butter to be labeled "renovated."

Penalty.

SEC. 14. Whoever by himself, his agents, or employes shall manufacture, sell, offer, or expose for sale butter that is produced by taking original packing stock or other butter, or both, and melting the same, so that the butter fat can be drawn off, then mixing the said butter fat with skimmed milk, or milk, or cream, or other milk product, and rechurning the said mixture; or that is produced by any similar process and is commonly known as boiled or process butter, unless the tub, firkin, or other original package in which the same may be put up, be distinctly, legibly, and durably branded, stamped, or marked in a conspicuous place with the words "renovated butter" in printed letters not less than one inch in length and one half inch in width, in prints, boxes, or rolls not plainly and conspicuously labeled on the wrapper thereof with said words "renovated butter" in printed letters not less than one-half inch in length and one-quarter inch in width shall be deemed guilty of a misdemeanor and punished by a fine of not less than twenty-five dollars nor more than one hundred dollars for each and every offense.

Notice to be given of use of oleomargarine in public eating places.

Penalty.

SEC. 15. Whoever furnishes or causes to be furnished in any hotel, restaurant, boarding house, or at any lunch counter oleomargarine, or butterine to any guest or patron of such hotel, restaurant, boarding house, or lunch counter in the place or stead of butter shall notify said guest or patron that the substance so furnished is not butter and any party so furnishing without such notice shall be punished by a fine of not less than five dollars nor more than ten dollars for each and every offense.

Substitute or filled cheese to be labeled.

Penalty.

SEC. 16. Any person or firm who shall sell or offer for sale or make or manufacture out of any oleaginous substance or substances or any compound of the same or any other compound other than that produced from unadulterated milk any article designed to take the place of cheese, produced from pure milk or any article termed "filled-cheese" shall stamp each package of the same on the top and side with lamp black and oil the words "filled-cheese" or words that shall designate the exact character and quality of the product in printed letters at least one inch long and one-half inch wide. Whosoever violates the provisions of this section is guilty of a misdemeanor and shall be punished by a fine of not less than twenty-five dollars nor more than one hundred dollars for each and every offense.

Assistant commissioner, director of farmers' institutes.

SEC. 17. The assistant dairy and food commissioner shall be director of farmers' institutes in the State and have charge of all matters relating thereto. He shall arrange for holding as many farmers' institutes during the year as possible and in connection with local committee where institute is to be held shall prepare program and provide for speakers and lectures. The expense of such institutes shall be limited to the actual expense of travel and entertainment for speakers and lecturers.

Repeal.

SEC. 18. All acts and parts of acts inconsistent or in conflict with the provisions of this act are hereby repealed.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 661-669, for—

Ohio Laws, volume 83, page 120[1] (sections 1-4) (= Giauque, 8847-8850).—An act to create the office of dairy and food commissioner, provide for his election, term of office, duties, salaries, expenses, office, dispositition of fines collected, annual reports, etc. (Passed and took effect May 8, 1886.)

Ohio Laws, volume 88, page 74 (section 1).—An act to require the Ohio dairy and food commissioner to give bond. (Passed and took effect March 4, 1891.)

Ohio Laws, volume 86, page 229 (sections 1-4) (= Giauque, 8837-8840).—An act to regulate the sale of milk. (Passed and took effect April 10, 1889.)

Ohio Laws, volume 83, page 178 (sections 1-17)[2] (= Giauque, 8821-8834, 8836).—An act to prevent adulteration of and deception in the sale of dairy products, and supplementary to Chapter II, Title I, part 4, of the Revised Statutes. (Passed and took effect May 17, 1886.)

Ohio Laws, volume 87, page 51 (sections 1-3)[2].—An act to prevent deception in the sale of dairy products and to preserve the public health. (Passed March 7, 1890; took effect May 1, 1890.)

Ohio Laws, volume 91, page 274 (sections 1-7).—An act to prevent fraud and deception in the manufacture and sale of oleomargarine and promote public health in the State of Ohio. (Passed and took effect May 16, 1894.)

Ohio Laws, volume 92, page 51 (sections 1-10).—An act to prevent fraud in the manufacture and sale of imitations of cheese or substitutes for cheese, and to regulate the branding of cheese in the State of Ohio. (Passed and took effect March 3, 1895.)

Ohio Laws, volume 81, page 67 (sections 1-5).—An act to provide against the adulteration of food and drugs. (Passed March 20, 1884; took effect forty days later.)

Following should be added:

OHIO LAWS, Volume 91, page 412.

AN ACT to amend sections [section ?] 3718*a* of the Revised Statutes of Ohio. (Passed and took effect May 21, 1894.)

SECTION 1. That section 3718*a* of the Revised Statutes of Ohio, be and the same is hereby amended to read as follows:

Jurisdiction in violation of food and dairy laws.

SEC. 3718*a*. Any justice of the peace, within his county and city, police judge or mayor of any city or village, within his city or village, shall have jurisdiction in case of violation of the laws, to prevent adulteration of food and drink, the adulteration and deception in the sale of dairy products, and drugs and medicines, and any violation of the law for the prevention of cruelty to animals, or under section sixty-nine hundred and eighty-four of the Revised Statutes, or section sixty-nine hundred and eighty-four-*a* thereof as herein enacted. If such prosecutions be before a justice of the peace, and a trial by jury be not waived, the said justice shall issue a venire to any constable of the county, containing the names of sixteen electors of the county to serve as jurors to try such case and make due return thereof. Each party shall be entitled to two peremptory challenges, and shall be subject to the same challenges as jurors are subject to in criminal cases in the court of common pleas. If the venire of sixteen names be exhausted without obtaining the required number to fill the panel, the justice may direct the constable to summon any of the bystanders to act as jurors: *Provided*, That in all cases prosecuted under the provision of this section no costs shall be required to be advanced or paid by the person or persons authorized under the law to prosecute such cases: *And provided further*, That in all cases brought under the provision of this section, if the defendant be acquitted, or if convicted and committed n default of paying fine and costs, the costs of each case shall be certified under oath to the county auditor, who, after correcting the same, shall issue [a] warrant on the county treasurer in favor of the person or persons to whom such cost and fees shall be paid.

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[1] Appropriation for 1900, $50,340.

[2] The supreme court of Ohio has upheld the law requiring that oleomargarine shall not be colored to resemble butter.

And in cases brought for any violation of law for the prevention of cruelty to animals, the humane society or their agents, may employ an attorney to prosecute the same, who shall be paid for his services out of the county treasury, as the county commissioners may deem just and reasonable.

Repeal. In effect.

SEC. 2. Said original section 3718a is hereby repealed, and this act shall take [effect] and be in force after its passage.

OKLAHOMA.

See Fourteenth Annual Report of the Bureau of Animal Industry, page 670, for—

Compiled Statutes, 1893, chapter 25, article 36 (2264), section 16.—Concerning adulteration.

Compiled Statutes, 1893, chapter 25, article 50 (2436, 2437, 2443), sections 1, 2, 8.—Concerning impure provisions and milk.

Compiled Statutes, 1893, chapter 8 (342), section 4.—An act creating a board of health and regulating the practice of medicine. (Took effect December 25, 1890.)

OREGON.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 670–673, for—

General Laws, 1893, page 99 (sections 1-20).—An act to prevent the production and sales of unwholesome foods and medicines, and to regulate sales of adulterated foods, drinks, medicines, and fertilizers, and to repeal the act entitled "An act to prevent the production and sales of unwholesome foods, and to regulate the sales of adulterated foods, drinks, and medicines," approved February 25, 1889. (Filed in the office of secretary of State February 21, 1893.) [Most, if not all, of this act appears to be replaced by the following.]

Recently enacted:

GENERAL LAWS, 1899, page 46.

AN ACT to provide for the election of an Oregon Dairy and Food Commissioner, and to prescribe his duties and qualifications, and to prevent the production and sale of unwholesome food, drinks, medicine and fertilizers; and to repeal an act entitled "An Act to prevent the production and sale of unwholesome foods and medicines, and to regulate sales of adulterated foods, drinks, medicines, and fertilizers." (Approved February 16, 1899.)

Any adulterated food, etc., shall be plainly marked.

Notice of use in public eating places.

Reworked butter to be marked "Process butter."

Remolded butter to be marked "Tub butter."

Creamery stamps on such forbidden.

SECTION 1. No person or persons shall sell, or expose for sale, or exchange, or have in his or their possession for sale or exchange, any adulterated food, drink, medicine, or fertilizer, unless the same shall be plainly marked so as to establish its true character and distinguish it from pure articles of food, drink, medicine, or fertilizers, and in any public dining or eating room where adulterated food or drinks are used, the bill of fare shall state the fact in the same size type as is used in printing the body of said bill of fare; or, if no bill of fare is used, then and in that case printed notice thereof shall be posted in a conspicuous place in said dining or eating room so as to be easily seen by anyone entering such room, in which notice shall be stated in large letters the fact that adulterated foods and drinks are being used for foods and drinks; and it shall be unlawful for any person to offer or expose for sale reworked or mixed butter, unless the same is plainly marked "process butter," and it shall be unlawful for any persons to offer or expose for sale any tub or packed butter remolded into prints, rolls or squares unless the same is plainly marked "tub butter;" and it shall be unlawful for any person who offers or exposes reworked, mixed, packed, or remolded butter to mark or brand such butter with the stamp of any creamery or with the words "creamery butter."

Stabling of cows.

SEC. 2. When cows are kept by any person for dairy purposes, either for butter or cheese, or for the production of milk or cream, for sale, and are confined in stables, such cows so confined shall each be allowed at least 800 cubic feet of air, and such cows so stabled shall not be confined facing each other or when closer together than six feet, unless there shall be an air-tight partition between such cows at least four feet in height: and all stables where such cows are kept shall be well ventilated and kept in good, healthful condition; **Care of dairies.** and if any suspected diseased cow or other animal belongs to or about any dairy, the State dairy and food commissioner shall notify the State veterinarian; and if any dairy above stated is found to be in a filthy and unhealthful condition, the commissioner may notify the proprietor that said dairy must be put in a healthful condition within three days, and should said proprietor neglect or refuse to comply with such order, then the commissioners may employ other persons to perform such duty, and said proprietor shall pay all expenses of such labor.

Penalty. SEC. 3. Whosoever violates any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than $25 nor more than $100, or by imprisonment in the county jail not less than 30 days nor more than six months. Justices' courts•shall have jurisdiction of all cases arising under this act.

Adulteration defined. SEC. 4. An article of food or drink or medicine is deemed to be adulterated within the meaning of this act, when:

1. Any substance or substances have been mixed with it so as to reduce or lower or injuriously affect its quality or strength.
2. If any inferior or cheaper substance or substances have been substituted, wholly or in part for it.
3. If any valuable constituent has been wholly or in part abstracted from it.
4. If it is an imitation of or is sold under the name of another article.
5. If it is colored, coated, or powdered or polished, whereby damage is concealed, or if it is made to appear better or of greater value, as compared with the total solids, than it really is: *Provided, however*, That salt and annotto, or butter color, in which annotto is the principal ingredient, shall not be considered an adulteration when used in dairy products.
6. **Butter standard.** Butter that contains more than 14 per cent water.
7. **Milk standard.** Milk that contains more than 88 per cent water.
8. Milk that contains less than 3 per cent butter fat.
9. Milk that contains less than 8 per cent solids, other than butter fat, and less than 1.038 specific gravity after cream has been removed.
10. **Cheese standard.** Cheese that contains less than 40 per cent butter fat, as compared with total solids.
11. **Cream standard.** Cream that contains less than 20 per cent butter fat.
12. **Condensed milk standard.** Condensed milk that contains less than 12 per cent of milk solids in pure milk, 25 per cent of which shall be pure fat.

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Dairy and food commissioner; term; salary. SEC. 5. That at the general election held in June, 1900, there shall be elected by the electors of the State of Oregon a commissioner, who shall be known as the Oregon dairy and food commissioner, who shall hold his office for the term of four years, and until his successor is elected and qualified, who shall qualify within 30 days from the time of his election by taking and filing an oath to faithfully perform the duties of said office with the secretary of State, and shall receive for his salary the sum of $1,000 per year and his actual traveling expenses and the expenses incurred in the discharge of the duties of said office: *Provided*, That at the regular session of the legislative assembly now in session there shall be elected, as provided by law, a commissioner who shall be known as the Oregon dairy and food commissioner, who shall hold his office until the election of said commissioner by the electors of the State of Oregon and until such commissioner shall have qualified as aforesaid. **Qualifications and duties.** The person elected as such commissioner shall be well qualified in dairy matters, and qualified to give theoretical and practical instruction in dairying; and it shall be the duty of such commissioner to give practical and theoretical instructions in dairy matters, whenever and wherever opportunity offers within the State, and to collect and disseminate such information as is calculated to develop the dairy interests within the State. **Office.** The said commissioner shall establish his office in the city of Portland, in this State, and shall, upon complaint being made by any citizen of the State of Oregon, or without such complaint if in his opinion necessary, examine into any case of violation or of supposed violation of the provisions of this act or any of them. **Deputies.** The said commissioner may appoint one deputy in each county in this State, said deputy's duties and compensation to be pre-

Creamery inspection. scribed by the commissioner; said deputy or deputies to be compensated by the commissioner. It shall be the duty of said commissioner to visit and inspect each and every creamery operated within the State of Oregon at least once each year.

Chemist of agricultural college to assist. SEC. 6. It shall be the duty of the chemist of the State agricultural college to correctly analyze any and all substances the said commissioner may send him for the purpose of carrying out the provisions of this act, and his certificate of analysis shall be prima facie evidence in all courts of justice.

Authority for inspections. SEC. 7. The said commissioner, and such chemists and experts or agents as he shall duly authorize for the purpose, shall have access to, egress, and ingress to, all places of business, factories, stores, farm buildings, carriages, cars, vessels, and implements used in the manufacture, production, or sale of any food, drinks, or medicines or fertilizers; and they also have the power and authority to open any package, case, or vessel containing such articles which may be manufactured, sold, or exposed for sale; and any manufacturer, dealer hotel, or restaurant keeper shall deliver to the commissioner, or his deputy, any samples of food, drinks, or medicines or fertilizers for analyzing or testing upon a tender of the price thereof in money.

Commissioner reports to the legislature. SEC. 8. Said commissioner shall keep a full and correct account of all business done by him or his experts, chemists, or agents, and report the same to the legislature.

Fines to go to common school fund. SEC. 9. In all prosecutions under this act the fine or fines collected by and under the same shall go to the common school fund of the State; provided, that all such moneys shall be transmitted to the State treasury at the State capital by the officer collecting the same: *Provided, further*, That the State treasurer shall forward a duly certified receipt and shall credit all such accounts to the common school fund.

Impure milk defined. SEC. 10. In all prosecutions under the provisions of this act relating to the sale of diseased foods, or that which is unclean, impure or unhealthy, milk drawn from cows for 15 days before and 5 days next after parturition, or from cows fed on unwholesome food, or any calf that has been slaughtered under the age of four weeks, shall be deemed and declared unclean, impure, and unwholesome.

Use of false brands. SEC. 11. Any person who shall use the box, boxes, or brands used by any creamery or dairyman for the purpose of selling the butter of any other creamery or dairyman shall be subject to all the fines and penalties provided for in this act.

Sales of imitation dairy products to be recorded. SEC. 12. Every person who sells oleomargarine, butterine, or any imitation butter whatsoever, or other imitation dairy products, in this State, shall keep a sale book in which all sales shall be entered at the time of sale. Said sale book shall state the amount sold, together with the name and address of the purchaser, and said sale book shall be open to the inspection of the State food commissioner or his agents at all times.

Transportation companies to give information. SEC. 13. Every railroad company or other transportation company in this State, upon application of the State food commissioner or his authorized agent, shall give the name and address of any shipper or consignee of any supposed diseased meats or foods of any kind.

Annual reports from butter and cheese makers. SEC. 14. Every person or company who manufactures for sale, in quantities exceeding 25 pounds per week, butter or cheese in this State, shall report to the food commissioner annually each year, as follows:

First—Name and address of manufacturer.

Second—Name and address or owner of cows.

Third—Number of pounds of milk purchased.

Fourth—Total number of pounds of milk used in the manufacture of butter, and the number of pounds used in making cheese.

Fifth—Number of pounds of butter and cheese made.

Sixth—Number of pounds of butter and cheese sold: *Provided*, That the amount of butter or cheese made by any such person shall not be published if the maker requests that it shall not be done.

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Repeal. SEC. 16. All acts and parts of acts in conflict with the above provisions of this act are hereby repealed.

PENNSYLVANIA.[1]

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 673–680, for—

Session of 1893, No. 96 (sections 1–7).—An act to enlarge the powers of the State board of agriculture, to authorize the said board to enforce the provisions of the act entitled "An act for the protection of the public health and to prevent adulteration of dairy products and fraud in the sale thereof," approved May 21, A. D. 1885, and of other acts in relation to dairy products; to authorize the appointment of an agent of the said board who shall be known as the "dairy and food commissioner," and to define his duties and fix his compensation, being supplementary to an act entitled "An act to establish a State board of agriculture," approved May 8, A. D. 1876. (Approved May 26, 1893.)

Session of 1895, No. 8, section 4.—An act to establish a department of agriculture and to define its duties and provide for its proper administration. (Approved March 13, 1895.)

Session of 1895, No. 457 (section 1).—An act to enlarge the duties of the State food commissioner, authorizing him to enforce all laws against the adulterations or impurities in vinegar, jellies, cider, evaporated apples and all apple products, and the unlawful labeling in the State of Pennsylvania. (Approved July 5, 1895.)

Session of 1897, No. 118 (sections 1–4).—An act to prohibit the adulteration or coloring of milk or cream by the addition of so-called preservatives or coloring matter, and to provide for the enforcement of the same. (Approved June 10, 1897.)

Session of 1885, No. 186 (sections 1–9).—An act to prevent the adulteration of and the traffic in impure and unwholesome milk in cities of the second and third class. (Approved July 7, 1885.)

Session of 1869, No. 56 (section 1).—An act to authorize the councils in cities and boroughs in this Commonwealth to provide for the inspection of milk. (Approved April 20, 1869.)

Session of 1878, No. 183 (sections 1–6).—An act to prevent the adulteration of milk and prevent the traffic in impure and unwholesome milk. (Approved May 25, 1878.)

Session of 1895, No. 258, sections 14–17.—An act creating a bureau of health in the department of public safety in cities of the second class. (Approved June 26, 1895.)

Session of 1897, No. 164 (sections 1–4).—An act to prevent fraud and deception in the manufacture and sale of cheese and defining what shall constitute the various grades of cheese, providing rules and regulations for marking and branding the same, providing for the enforcement of this act, prescribing penalties for its violation. (Approved June 23, 1897.)

Session of 1893, No. 65 (sections 1–3).—An act to prohibit the use of any adulteration or imitation of dairy products in any charitable or penal institution, being supplementary to an act entitled "An act for the protection of the public health and to prevent adulteration of dairy products and fraud in the sale thereof," approved May 21, A. D. 1885. (Approved May 23, 1893.)

Session of 1895, No. 233 (sections 1–6).—An act to provide against the adulteration of food and providing for the enforcement thereof. (Approved June 26, 1895.)

[The State department of agriculture reports that No. 236, session of 1895, concerning preservatives, was repealed by No. 118, session of 1897; and No. 25, session of 1885, concerning imitations of butter and cheese, was repealed by No. 136, session of 1899.]

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[1] A part of the laws relate especially to the milk supply of certain classes of cities, and their enforcement is in the charge of the authorities of the cities concerned.

Recently enacted:

SESSION OF 1899, No. 121.

AN ACT to regulate the sale of butter produced by taking original packing stock and other butter and melting the same, so that the butter oil can be drawn off, mixed with skimmed milk or other material, and by emulsion or other process produce butter, and butter produced by any similar process, and commonly known as "Boiled" or "Process" butter; providing for the enforcement thereof, and punishment for the violation of the same. (Approved May 4, 1899.)

Butter produced from melted butter, etc., to be labeled "Renovated Butter."

How to be marked.

SECTION 1. That no person, firm, or corporate body shall, within this State, sell, or offer or expose for sale, or have in his, her, or their possession with intent to sell, any butter not labeled in compliance with the provisions of this act. Butter produced by taking original packing stock and other butter and melting the same, so that the butter oil can be drawn off, mixed with skimmed milk or other material, and by emulsion or other process produce butter, and butter produced by any similar process, and commonly known as "Boiled" or "Process" butter, shall before sale, and before being offered or exposed for sale, and while in the possession of any person, firm, or corporate body with intent to sell the same, be plainly labeled "Renovated Butter," in the manner prescribed by this act. If sold, offered or exposed for sale, or in possession of any person, firm, or corporate body with intent to sell the same in prints or rolls, the prints or rolls shall be covered by wrapper's, on which shall be printed in conspicuous letters the words "Renovated Butter." If packed in tubs or other receptacles, and sold or offered or exposed for sale, or held in the possession of any person, firm, or corporate body with intent to sell the same, the said words shall be printed in one-inch letters on the top and two sides of the tub or receptacle; if uncovered and not contained in a tub or other receptacle, and sold or offered or exposed for sale, or held in the possession of any person, firm, or corporate body with intent to sell the same, a placard containing the said words shall be attached to the mass, in a manner making them plain and prominent.

Penalty.

Enforcement.

Authority for inspections.

Samples for analysis.

Payment of expenses.

SEC. 2. Every person, firm, or corporate body who shall violate any of the provisions of this act shall, for every such offense, forfeit, and pay not less than twenty-five dollars nor more than one hundred dollars, which shall be recoverable with costs, including expense of inspection and analysis, by any person suing in the name of the Commonwealth, as debts of like amount are by law recoverable: *Provided*, That the Department of Agriculture, through its officer known as the Dairy and Food Commissioner, together with the deputies, agents, and assistants, shall be charged with the enforcement of this act, and shall have full access to all places of business, factories, buildings, carriages, cars, vessels, barrels, and packages of whatever kind, used in the manufacture and transportation and sale of any butter, or of any adulteration or imitation thereof. They shall also have power and authority to open any package, barrel, or vessel containing any butter, or any adulteration or imitation thereof, which may be manufactured, sold, or offered or exposed for sale, or held in possession with intent of the holder to sell; and they shall also have full power and authority to take the samples therefrom for analysis, upon tendering the value of said samples. And all charges, accounts, and expenses of the Department for the enforcement of this act, through the said commissioner and his deputies, agents, assistants, chemists, and counsel employed by him in carrying out the provisions of this act, shall be paid by the Treasurer of the State in the same manner as other accounts and expenses of the said Department are paid. And all penalties and costs for the violation of the provisions of this act shall be paid to the said Dairy and Food Commissioner, or his agents, and by him immediately covered into the State Treasury.

Penalty.

Forfeiture for violation.

SEC. 3. Every person who violates any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not more than one hundred dollars, or by imprisonment in the county jail for not more than thirty days, or both fine and imprisonment, for the first offense; and a fine of one hundred dollars and imprisonment for thirty days, for every subsequent offense: *Provided*, That all fines and costs, including the expense of inspection and analysis imposed under this section, shall be covered into the State Treasury, as provided by section two of this act; and all butter sold or offered or exposed for sale, or held in the possession of any one with intent to sell the same, in violation of the provisions of this act shall be subject to forfeiture and spoliation.

Jurisdiction of magistrates and justices.

SEC. 4. Magistrates and justices of the peace throughout this Commonwealth shall have jurisdiction to hear and determine actions arising for violations of the provisions of this act, and to hold for court or impose the penalties provided therein, subject to appeal as the law shall direct.

SESSION OF 1899, No. 136.

AN ACT to regulate the manufacture and sale of oleomargarine and butterine and other similar products, to prevent fraud and deception by the manufacture and sale thereof as an imitation of butter, the licensing of manufacturers of and dealers in the same, and providing punishment for violations of the act and the means for its enforcement. (Approved May 5, 1899.)

Imitation butter prohibited.

Oleomargarine permitted if uncolored, etc.

Manufacturers and sellers to be licensed.

SEC. 1. That no person, firm, or corporate body, by himself, herself, or themselves, or by his, her, or their agents or servants, shall render or manufacture, sell, ship, consign, offer for sale, expose for sale, or have in his, her, or their possession, with intent to sell, any article, product, or compound made wholly or partly out of any fat, oil, or oleaginous substance, or compound thereof, not produced from unadulterated milk or cream from the same, without the admixture or addition of any fat foreign to the said milk or cream, and which shall be in imitation of yellow butter, produced from pure, unadulterated milk or cream of the same, with or without coloring matter: *Provided*, That nothing in this act shall be construed to prohibit the manufacture or sale, or offering or exposing for sale, or having in possession with intent to sell, oleomargarine or butterine or any similiar substance, free from coloration or ingredients that cause it to look like butter, and in a separate and distinct form, and in such manner as will advise the consumer of its real character, if the person, firm, or corporate body who shall manufacture, sell, or offer or expose for sale, or have in his, her, or their possession, with intent to sell, any of the said substances, shall first obtain a license, and pay a license fee, as hereinafter provided, and shall in all other respects comply with the provisions of this act.

Packages to be marked.

Placards to be displayed.

Small parcels to be wrapped in stamped wrappers.

SEC. 2. It shall be unlawful for any person, firm, or corporate body to sell, or offer or expose for sale, or have in possession with intent to sell, oleomargarine, butterine or any similar substance, not marked and distinguished on the outside of each tub, package, or parcel thereof, in a conspicuous place, by a placard with the word "oleomargarine" or "butterine," and not having also upon every open tub, package, or parcel thereof, in a conspicuous place, a placard with the word "oleomargarine" or "butterine," such placard in each case to be printed in plain, uncondensed Gothic letters, not less than one inch long, and such placard shall not contain any other words thereon, and every print or roll shall be wrapped in wrappers plainly stamped on the outside thereof with the words "oleomargarine" or "butterine," and where oleomargarine or butterine or other similar product is sold from solid packages, before being delivered to the purchaser it shall be wrapped by the seller thereof in a wrapper plainly stamped on the outside thereof "oleomargarine" or "butterine," and said wrapper shall contain no other words.

Manufacturers and dealers to obtain a license.

License fees.

Fees to be covered into Treasury.

SEC. 3. Every person, firm, or corporate body, and every agent of such person, firm, or corporate body, who shall manufacture, sell, or offer or expose for sale, or have in his, her, or their possession with intent to sell, oleomargarine, butterine, or any similar substance, shall first obtain from the Department of Agriculture through its agent, the Dairy and Food Commissioner, a license authorizing him, her or them to engage in the manufacture or sale of oleomargarine or butterine or similar substance, for which said license he, she, or they shall pay, if a manufacturer, the annual sum of one thousand dollars; if a wholesaler, the annual sum of five hundred dollars; and if a retailer, the annual sum of one hundred dollars; if a restaurant keeper, or a hotel proprietor, the annual sum of fifty dollars; and if a boarding-house keeper, the annual sum of ten dollars; and the said license fee when received by the Dairy and Food Commissioner or his agent shall be by him immediately covered into the State Treasury. And after obtaining the license required by this section, before any person, firm or corporate body shall manufacture, sell, or offer or expose for sale, or have in his, her, or their possession with intention to sell, oleomargarine or butterine or any similar sub-

Signs to be obtained from commissioner. stance, he, she, or they shall be required to procure from the Department of Agriculture, through the Dairy and Food Commissioner. a sign or signs, as the Dairy and Food Commissioner shall determine, which in size and lettering shall be as the Dairy and Food Commissioner shall direct, and shall be uniform throughout the Commonwealth, clearly setting forth that he, she, or they are engaged in the manufacture or sale of oleomargarine or butterine or any other similar substances, as the **Signs to be conspicuously hung.** case may be, which said sign or signs, when procured, shall be hung up in a conspicuous place or places on the walls of the rooms or store in which the oleomargarine or butterine or other similar substance is manufactured or sold: *Provided*, That peddlers and others **Delivery vehicles to be marked.** who may have obtained a license as herein required, and who shall sell, offer or expose for sale, or have in their possession with the intent to sell, oleomargarine or butterine or any similar substance, upon the public streets or ways, may sell or offer or expose for sale, or have in their possession with intent to sell, the same, if the cart, wagon or vehicle, or receptacle in which the oleomargarine or butterine or other substance is contained, is marked or placarded on two sides of the exterior of said vehicle or receptacle in uncondensed Gothic letters, not less than four inches in length, with the words "Licensed to sell oleomargarine" or "Licensed to sell butterine," and if they shall in all other respects comply with the provisions of this act. All **Licenses expire December 31.** licenses under this act shall expire on the thirty-first day of December of each year; but licenses may be granted the first of any month for the remainder of a year upon the payment of a proportionate part of an annual license fee. Wholesale dealers within the meaning of this **Wholesale and retail dealers defined.** act, shall be all persons, firms, and corporate bodies who shall sell to dealers, and persons who shall buy to sell again, and all persons, firms and corporate bodies who make sales in quantities of ten pounds and over at any time; and retail dealers shall be all persons, firms and corporate bodies who shall sell in quantities less than ten pounds.

Penalty. SEC. 4. Every person, firm, or corporate body who shall manufacture, sell, or offer or expose for sale, or have in his, her, or their possession with intent to sell, oleomargarine or butterine or any similar substance, in violation of any of the provisions of this act, or who shall in any other respect violate any of its provisions, shall for every such offense forfeit and pay the sum of one hundred dollars, which shall be recoverable, with the costs, including the expense of inspection and analysis, by any person suing in the name of the Commonwealth, **Justices of the peace and aldermen have jurisdiction.** as debts of like amount are by law recoverable; and justices of the peace and aldermen throughout this Commonwealth shall have jurisdiction to hear and determine all actions for recovery of penalties, with the right of appeal in either party to the court of common pleas, as provided in existing laws in suits for **Penalties go to State treasury.** penalties; and all penalties and costs imposed and recovered under the provisions of this act shall be paid to the Dairy and Food Commissioner or his agent, and by him immediately covered into the State Treasury. Any person, firm, or corporation who shall manufacture, sell, offer or expose for sale, or have in his, her, or their possession with intent to sell, oleomargarine or butterine or any other similar substance, in violation of any of the provisions of this act, or who shall in any other respect **Penalty.** violate any of its provisions, shall also be guilty of a misdemeanor, and upon conviction thereof shall be punished for the first offense by a fine of not less than one hundred dollars nor more than five hundred dollars, and upon his conviction for any subsequent offense shall be punished by a fine not less than one hundred and fifty dollars nor more than five hundred dollars, or by imprisonment in the county jail for not less than ten days nor more than sixty days, or by both fine and imprisonment, at the discretion of the court; and all fines im- **Fines to go to treasury.** posed upon any person after conviction shall be paid to the Dairy and Food Commissioner or his agent, and by him paid into the State Treasury.

The commissioner charged with enforcement of act. SEC. 5. The Dairy and Food Commissioner shall be charged with enforcement of all the provisions of this act, and shall have the same power to enforce its provisions that is given him to enforce the provisions of the act by which he receives his appointment.

Moneys paid under act to constitute a special fund. SEC. 6. The moneys paid into the treasury under the provisions of this act shall constitute a special fund for the use of the Department of Agriculture in enforcing this law, and may be drawn out upon warrants signed by the Secretary of Agriculture and approved by the Auditor General.

Repeal. SEC. 7. All acts or parts of acts inconsistent with this act are hereby repealed, but the repeal of said acts is not in any way to interfere with or prevent the prosecution to final termination of any actions, civil or criminal, now pending for violations of said acts.

RHODE ISLAND.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 680–683, for—

General laws of 1896, chapter 146 (sections 1–5).—Concerning butter tubs and oleomargarine.

General laws of 1896, chapter 147 (sections 1–13).—Concerning milk, milk measures, and milk inspectors.

Laws of 1896, chapter 333 (sections 1–3).—An act in amendment of and in addition to chapter 147 of the general laws, entitled "Of milk." (Passed May 13, 1896.)

Recently enacted:

LAWS OF 1900, Chapter 785.

AN ACT in amendment of and in addition to chapter 333 of the public laws, entitled "An act in amendment of and in addition to chapter 147 of the general laws, entitled 'Of milk,'" passed at the January session, 1896. (Passed May 31, 1900.)

Providence inspectors may appoint two collectors of samples. SECTION 1. Any inspector of milk in the city of Providence now in office, or hereafter elected under authority of Chapter 147 of tne General Laws, entitled "Of milk," or of any act in amendment thereof or in addition thereto, may appoint, subject to the approval of the mayor and aldermen of said city of Providence, two persons as collectors of samples, each of whom shall have the same powers and be subject to the same duties and liabilities provided by law relative to collectors authorized by the provisions of Chapter 333 of the Public Laws, entitled "An act in amendment of and in addition to Chapter 147 of the General Laws, entitled 'Of Milk,'" passed at the January session, A. D. 1896. All specimens or samples taken and retained by any such collector shall be delivered to such inspector, who shall have the same powers and duties relative to the same as in case of specimens or samples taken by himself; such inspector may at any time dismiss any such collector and, subject to the approval aforesaid, appoint another person in his stead. Each such collector, upon appointment, shall be duly engaged to the faithful discharge of his duties before the city clerk of said city, who shall keep a record thereof, and shall receive such salary as the mayor and aldermen of said city shall determine.

SEC. 2. All acts and parts of acts inconsistent herewith are hereby repealed, and this act shall take effect from and after its passage.

SOUTH CAROLINA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 683 and 684, for—

Acts of 1896, No. 96 (sections 1–14).—An act to regulate the sale of milk, *butter*, and cheese, and to prescribe penalties for the unlawful sale or exposure for sale of any watered or adulterated or unwholesome milk and imitations or adulterations of butter and cheese. (Approved March 9, 1896.)

SOUTH DAKOTA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 684 and 685, for—

Compiled Laws of Dakota, 1887, Political Code, Article 5, sections 2250 and 2251.—Concerning health officers and butter and cheese.

Laws of 1897, chapter 65 (sections 1–6).—An act to amend sections 2246, 2248, and 2249 of the Compiled Laws of 1887, the same being sections 1, 3, and 4, chapter 64, session laws of 1885, relating to adulteration of food and drink. (Approved March 3, 1897.)

Recently enacted:

LAWS OF 1899, Chapter 89.

AN ACT relating to the manufacture, sale, compounding, or adulteration of lard, or any compounds or substitutes thereof, food, jellies, spices, and condiments, baking powders, vinegars, honey, candy, and other articles of food, to prevent fraud and to preserve the public health. (Approved February 28, 1899.)

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Adulterated food to be labeled. SEC. 23. It shall be unlawful for any person or persons to offer for sale to the residents of this State, or have in their possession with intent to sell, sell, or cause to be sold, any article of food whatsoever that is adulterated, unless the package containing the same bears a label upon the outside and face of said package on which is distinctly printed, in the English language, and in legible type not smaller than double pica, the name and location of the person, firm or corporation manufacturing the same, the word "adulterated," and immediately following and below this word the common English name of the article of food which the box or package contains.

Evidence of violation. SEC. 24. The having in possession by any firm, person, or corporation any article or substance hereinbefore described and referred to as adulterated or mixed, and which is not labeled as hereinbefore required and directed, shall be considered as prima facie evidence that the same is kept by such person, firm, or corporation in direct violation of the provisions of this Act.

Chemist's certificate. SEC. 25. In all prosecutions arising under this Act, the certificate of the chemist making the analysis, when duly sworn to by such analyst, shall be prima facie evidence of the fact or facts as therein certified.

Adulterated food defined. SEC. 26. Any article of food shall, for the purpose of this Act be deemed adulterated:

1. If any substance or substances shall have been mixed with an article of food so as to lower or depreciate its quality, strength, or purity.
2. If any cheaper or inferior substance or substances have been substituted wholly or in part for it.
3. If any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it.
4. If it is an imitation of, or sold or represented for sale under the name of, any other substance or article.
5. If it is colored, powdered, or treated in any manner whereby damage or inferiority is concealed.
6. If it contains any added substance or ingredient which is poisonous or injurious to health.

Prosecutions. SEC. 27. In all prosecutions under the various sections of this Act, the cost thereof shall be paid in the manner now provided by law, and it shall be the duty of all prosecuting attorneys to represent and prosecute in behalf of the people, within their respective counties, all such cases of offense arising under the provisions of this Act, and all fines imposed shall be paid into the State treasury: *Provided*, nothing in this Act shall be construed to affect stocks purchased, on hand, and for sale prior to the taking effect of this Act.

Penalty. SEC. 28. Any person violating any of the provisions of this Act shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five (25) dollars, nor more than fifty (50) dollars and costs, or by imprisonment in the county jail for not less than thirty days nor more than ninety days.

Repeal. SEC. 29. All Acts and parts of Acts in conflict with the provisions of this Act are hereby repealed.

TENNESSEE.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 686–688, for—

Acts of 1879, chapter 169 (sections 1–4).—An act to prevent fraud in the sale of butter and cheese. (Approved March 26, 1879.)

Acts of 1895, chapter 101 (sections 1–6).—An act to provide for labeling, stamping, or marking oleomargarine, butterine, and imitation butter, and to provide against coloring the same, and fixing the punishment for violation of this act. (Approved April 10, 1895.)

Public Acts of 1897, chapter 45 (sections 1–8).—An act to prevent the adulteration and misbranding of food and drink and the deception in the sale of the same in Tennessee, and to fix the penalty for the violation of this act. (Approved March 24, 1897.)

TEXAS.

REVISED STATUTES OF TEXAS, 1895, Title 21, Chapter 2.

ARTICLE 642 [566] The purposes for which private corporations may be formed are—

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SEC. 52. The establishment and carrying on of dairies and creamery companies.

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UTAH.

[Chapter 63, of the Laws of 1894, on page 689, of the Fourteenth Annual Report of the Bureau of Animal Industry, was repealed by section 19 of chapter 60 of the Laws of 1896.]

The following acts are now in force:

LAWS OF 1896, Chapter 60.

AN ACT to prevent deception and fraud in the sale of dairy products and to regulate the sale and manufacture of oleomargarine and similar products and to prohibit the sale of filled cheese and to repeal chapter 63 of the session laws of 1894, Territory of Utah. (Approved March 21, 1896.)

Sale or delivery of impure milk. SECTION 1. Any person who shall sell or offer for sale or furnish or deliver, or have in his possession, with intent to sell or offer for sale or furnish or deliver to any creamery, cheese factory, corporation, person or persons whatsoever, as pure, wholesome, and unskimmed, any unmerchantable, adulterated, impure, or unwholesome milk, shall upon conviction thereof be punished by a fine of not less than ten nor more than one hundred dollars for each and every offense.

Penalty.

Impure, etc., milk defined. SEC. 2. In all prosecutions or other proceedings under this or any other law of this State relating to the sale or furnishing of milk, if it shall be proven that the milk sold or offered for sale, or furnished or delivered, or had in possession with intent to sell or offer for sale, or to furnish or deliver as aforesaid, as pure, wholesome, and unskimmed, has been diluted or any part of its cream abstracted, or that it or any part of it was drawn from any cow within twenty days before or five days after parturition or from any cow that has any disease or ulcer or other running sore, then and in either case the said milk shall be held, deemed and adjudged to have been unmerchantable and adulterated, impure, or unwholesome, as the case may be.

Skim milk to be labeled. SEC. 3. No person, by himself or by his agents or servants, shall sell, exchange, or deliver, or have in his custody or possession with intent to sell, exchange, or deliver milk from which the cream or any part thereof has been removed, unless in a conspicuous place above the center upon the outside of every vessel, can, or package, from or in which such milk is sold, the words "Skimmed milk" are distinctly marked in uncondensed Gothic letters not less than one inch in length, said skim milk to contain not less than nine per centum of milk solids exclusive of fats. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than ten nor more than one hundred dollars for each and every offense.

Skim milk standard.

Kinds of tests for adulteration. SEC. 4. Proof of adulterations and skimming may be made with such standard tests and lactometers as are used to determine the quality of milk or by chemical analysis.

Preservatives forbidden. SEC. 5. Any person who shall sell or offer for sale, consign, or have in his possession with intent to sell to any person or persons, any milk, cream, butter, cheese, or other dairy products, or who shall

Penalty.

deliver to any creamery or cheese factory milk or cream to be manufactured into butter or cheese, to which boracic acid, or salicylic acid, or compounds containing them, or other antiseptics injurious to health, have been added, shall be guilty of a misdemeanor, and upon conviction thereof be punished by a fine of not less than ten nor more than one hundred dollars for each and every offense.

Filled cheese prohibited. SEC. 6. No person, by himself or by his agents or servants, shall manufacture, or shall buy, sell, or offer ship, consign, expose, or have in his possession for sale any cheese manufactured from or by the use of skimmed milk to which there has been added any fat which is foreign to such milk.

Size of skim milk cheese regulated. SEC. 7. No person, by himself or by his agents or servants, shall manufacture, or shall buy, sell, ship, consign, expose, or have in his possession for sale, within this State any skimmed milk cheese, or cheese manufactured from milk from which any of the fats originally contained therein has been removed, except such cheese is not less than 9 nor more than 11 inches in diameter, and not less than 9 inches in height.

Imitation of yellow butter prohibited. **Uncolored oleomargarine permitted.** SEC. 8. No person, by himself or by his agents or servants, shall render or manufacture, sell, ship, consign, offer for sale, expose for sale, take orders for the future delivery of, or have in his possession with intent to sell, any article, product, or compound made wholly or partly out of any fat, oil, or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, and without the admixture or addition of any fat foreign to said milk or cream, which shall be an imitation of yellow butter produced from pure, unadulterated milk or cream of the same, with or without coloring matter: *Provided*, That nothing in this act shall be construed to prohibit the manufacture or sale of olemargarine in a separate and distinct form and in such manner as will advise the consumer of its real character free from coloration or ingredient that causes it to look like butter, and free from any word, brand, or marking, either upon the package or upon any wrapper or upon the contents of the same, which would in any wise tend to deceive the purchaser or consumer.

Sales of substitutes as butter forbidden. SEC. 9. It shall be unlawful for any person by himself or by his agent to sell or offer for sale to any person who asks, sends, or inquires for butter, any oleomargarine, butterine, or any substance made in imitation or semblance of pure butter not made entirely from the milk of cows, with or without coloring matter.

Oleomargarine, etc., to be labeled. SEC. 10. It shall be unlawful for any person to expose for sale oleomargarine, butterine, or any similar substance not marked and distinguished on the outside of each tub, package, or parcel thereof by a placard with the word "oleomargarine" and not having also upon the exposed contents of every open tub, package, or parcel thereof a conspicuous placard with the word "oleomargarine," such placard in each case to be printed in plain, uncondensed Gothic letters not less than one inch long, and such placard shall not contain any other words thereon.

Signs where oleomargarine is sold. SEC. 11. It shall be the duty of every person who sells oleomargarine, butterine, or any similar substance, from any dwelling, store, office, or public mart, to have conspicuously posted thereon the placard or sign in letters not less than four inches in length, "oleomargarine sold here" or "butterine sold here." Such placards shall be approved by the dairy and food inspector of the town or city, or if none by the clerk of the county, city recorder or town clerk.

Signs on wagons. SEC. 12. It shall be unlawful for any person, by himself or by his agents to peddle, sell, solicit orders for the future delivery of, or deliver from any cart, wagon, or other vehicle, oleomargarine, butterine, or any similar substance, not having on the outside of both sides of said cart, wagon, or other vehicle the placard in uncondensed Gothic letter, not less than three inches in length, "oleomargarine."

Guests to be notified. SEC. 13. It shall be unlawful for any person, by himself or by his agents or servants, to furnish or cause to be furnished, in any hotel, boarding house, restaurant, or at any lunch counter, oleomargarine, butterine, or any similar substance to any guest or patron of said hotel, boarding house, restaurant, or lunch counter, without first notifying each guest or patron that the substance so furnished is not butter.

Penalty. SEC. 14. Any person who shall violate any of the provisions of sections 6, 7, 8, 9, 10, 11, 12, 13, of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished for the first offense by a fine of not less than twenty-five dollars; and upon conviction of any subsequent offense shall be punished by a fine of not less than fifty dollars, or by imprisonment in the county jail for not less than ten days, or by both such fine and imprisonment, at the discretion of the court.

Pure butter and cheese in State institutions. SEC. 15. No butter or cheese not made wholly and directly from pure milk or cream, salt, and harmless coloring matter shall be used in any of the charitable or penal institutions of the State. **Penalty.** Any person or persons violating any of the provisions of this section of this act, shall, upon conviction thereof, be fined not less than twenty-five or more than fifty dollars for the first offense, or for each subsequent offense not less than fifty nor more than one hundred dollars, or be imprisoned in the county jail not less than ten nor more than sixty days or by both such fine and imprisonment.

Warrant for unlawful imitations. SEC. 16. When complaint shall be made on oath to any magistrate authorized to issue warrants in criminal cases, that imitation butter or imitation cheese or any substance designed or intended to be used as a substitute for butter or cheese, is in the possession or under the control of any person or persons contrary to the provisions of law of this State, and that the complainant believes that it is concealed in any particular warehouse, store, or refrigerator for mercantile purposes, the magistrate, if he be satisfied that there is cause for such belief, shall issue a warrant for such property.

Search warrants described. SEC. 17. All such warrants shall be directed to the sheriff of the county or his deputy or to any constable of the county, commanding such officer to search the house, building, store, or other place where imitation butter or imitation cheese or any substance designed or intended to be used as imitation butter or cheese for which he is required to search is believed to be concealed, which place and property to be searched for shall be designated and described in the warrant, and to bring such property when found and the person or persons in whose possession the same shall be found before the magistrate who issued the warrant or before some other magistrate or court having cognizance of the case.

Disposition of articles seized. SEC. 18. When any officer in the execution of a search warrant under the provisions of this act shall find any imitation butter or cheese, or any substance designed or intended to be used as an imitation for butter or cheese and for which a search is allowed by this act, all the property so seized shall be safely kept by the direction of the court or magistrate, so long as shall be necessary for the purpose of being produced as evidence on any trial: **Analyses to be made.** *Provided*, That it shall be the duty of the officer who serves a search warrant issued for imitation butter and imitation cheese or any substance designed or intended to be used as imitation butter or cheese and alleged to be in his possession or under the control of any person or persons contrary to law, to deliver to any person authorized in writing to receive the same, a true and perfect sample of each article seized by virtue of such warrant, for the purpose of having the same analyzed; such analysis to be made by a chemist of any State institution and the result of such analysis or test shall be recorded and preserved as evidence, and the expense of such analysis or test, not exceeding twenty dollars in any one case may be included in the cost of such prosecution. **Confiscation.** If any sample be found to be imitation butter or imitation cheese, or substance designed or intended to be used as an imitation for butter or cheese, and that the same, at the time of such seizure, was in the possession or under the control of any person or persons contrary to any of the provisions or requirements of this act, then and in such case the property so seized shall be confiscated under the direction of the court or magistrate; otherwise the said property shall be forthwith returned to the person or persons from whom it was taken.

Repeal. SEC. 19. Chapter 63 of the Session Laws of 1894, of the Legislative Assembly of the Territory of Utah is hereby repealed.

LAWS OF 1897, Chapter 54.

AN ACT Providing for a State Dairy and Food Commissioner, and Defining the Duties thereof.

(Approved March 11th, 1897.)

Dairy and food commissioner. SECTION 1. The office of Dairy and Food Commissioner for the State of Utah is hereby created. Such commissioner shall be appointed by the Governor (by and with the consent of the Senate) and his term of office shall be for two years from the date of his appointment: *Provided*, That the term of office of the commissioner first appointed under this act shall expire on the first Monday in March, 1899, and vacancies occurring in the office for any cause shall be filled by appointment for the balance of the unexpired term. **Salary.** The salary of the commissioner shall be $600 per annum, together with his necessary and actual expenses incurred in the discharge of his official duty; which shall be paid in the same manner as to other State officers: *Provided*, That said expenses shall not exceed $300 in any one year, and a statement of these expenses with the proper vouchers attached shall be filed with the State auditor on or before December 31st of each year.

His duties. SEC. 2. It shall be the duty of the commissioner and he is hereby invested with the powers to enforce all laws that now exist or that may hereafter be enacted in this State, regarding the production, manufacture, or sale of dairy products or the adulteration of any article of food or drink or of any drug, and personally (or by his deputy) to inspect any article of milk, butter, cheese, meat, vegetable, lard, syrup, coffee, or tea, or any other article of food or drink made or offered for sale within this State, which he may suspect or have reason to believe to be impure, unhealthy, adulterated, or counterfeit and to prosecute or cause to be prosecuted any person or persons, firm or firms, corporation or corporations engaged in the manufacture or sale of any unwholesome adulterated or counterfeit article or articles of food or drink, or drug contrary to the laws of the State.

Power of commissioner. SEC. 3. Said commissioner shall have power in the performance of his official duties to enter into any creamery, factory, store, salesroom, or other place or building where he has reason to believe that any food or drink or drug is made, prepared, sold, or offered for sale, and to open any cask, tub, package, or receptacle of any kind containing or supposed to contain, any such article, and to examine or cause to be examined and analyzed the contents thereof; and the commissioner may seize or take any article of food or drink or drug for analysis, **Duplicate samples.** but if the person from whom such sample is taken shall request him to do so he shall at the same time, and in the presence of the person from whom such property is taken securely seal up two samples of the article seized or taken, the one of which shall be for examination or analysis under the direction of the commissioner, and the other of which shall be delivered to the person from whom the articles were taken. **Penalty for hindrance.** Any person who shall obstruct the commissioner by refusing to allow him entrance to any place which he desires to enter in the discharge of his official duty, or who refuses to deliver to him a sample of any article of food or drink or drug made, sold, offered or exposed for sale by such person, when the same is requested and when the value thereof is tendered, shall be deemed guilty of a misdemeanor punishable by a fine of not exceeding twenty-five dollars for the first offense and not exceeding five hundred dollars or less than fifty dollars for each subsequent offense.

County attorney to assist. SEC. 4. It shall be the duty of the county attorney in any county of the State, when called upon by the commissioner, to render any legal assistance in his power to execute the laws, and to prosecute cases arising under the provisions of this act; and all fines and assessments collected in any prosecution begun or caused to be begun by said commissioner shall be paid into the State treasury.

Biennial reports. SEC. 5. Said commissioner shall make a biennial report to the Governor, which shall contain an itemized account of all expenses incurred and fines collected, with such statistics and other information as he may regard of value; and with the consent of the Governor not exceeding one thousand copies thereof, may be published annually as other official reports are published.

In effect. SEC. 6. This act shall take effect upon approval.

VERMONT.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 689–691, for—

Vermont Statutes, 1894, sections 4300, 4327–4340, 4975, and 4976.—Concerning milk, butter, cheese, and imitations.

Recently enacted:[1]

LAWS OF 1898, No. 81.

AN ACT for the protection of dairymen, relating to testing milk and cream. (Approved November 19, 1898.)

Test bottles, etc., to be accurate.

SECTION 1. All bottles, pipettes, or other measuring glasses used by any person, firm, or corporation, or their agents or employees, at any creamery, butter factory, cheese factory, or condensed milk factory, or elsewhere in this State, in determining by the Babcock test, or by any other test, the value of milk or cream received from different persons or parties at such creameries or factories, shall, before such use, be tested for accuracy of measurement and for accuracy of the per cent scale marked thereon. It shall be the duty of the superintendent of the dairy school of the University of Vermont and State Agricultural College to designate some competent person to test the accuracy of such bottles, pipettes or other measuring glasses. The person thus designated shall so mark such bottles, pipettes or other measuring glasses as are found correct in marks or characters which can not be erased, which marks or characters shall stand as proof that they have been so tested; and no incorrect bottles, pipettes, or other glasses shall be thus marked. The superintendent of the dairy school shall receive for such service the actual cost incurred and no more, the same to be paid by the persons or corporations for whom it is done.

Glassware to be examined at dairy school.

Persons making tests as basis for payments to hold certificates.

SEC. 2. Each and every person who, either for himself or in the employ of any other person, firm, or corporation, manipulates the Babcock test, or any other test, whether mechanical or chemical, for the purpose of measuring the contents of butter fat in milk or cream as a basis for apportioning the value of such milk or cream, or the butter or cheese made from the same, shall secure a certificate from the superintendent of the dairy school of the University of Vermont and State Agricultural College that he or she is competent and well qualified to perform such work. The rules and regulations in the application for such certificate and in the granting of the same shall be such as the superintendent of the school may arrange. The fee for issuing such certificate shall in no case exceed one dollar, the same to be paid by the applicant to the superintendent of the dairy school and to be used by the superintendent in meeting the expenses incurred under this section.

Complaints and penalties.

SEC. 3. Any person or persons violating any of the provisions of this act, shall, on conviction in a court of competent jurisdiction be fined not more than twenty-five dollars for the first offense, and not more than fifty dollars for each subsequent offense. It shall be the duty of every sheriff, deputy sheriff, and constable to institute complaint against any person or persons violating any of the provisions of this act, and, on conviction, one-half of the fines shall go to the complainant and the balance to the State.

LAWS OF 1898, No. 82.

AN ACT in relation to creameries and cheese factories and the management of the same (Approved November 29, 1898.)

Creamery patrons to have monthly statements.

SECTION 1. Every owner, operator, or manager of a creamery in this State, whether cooperative or proprietary, shall monthly make and deliver to each of the patrons of said creamery a statement of the number of pounds of milk or cream such patron delivers for that month, together with the test, pounds of butter fat, gain per cent from the churn, and actual pounds of butter produced from said milk, and the price paid for the same shall be computed on the actual pounds of butter.

Milk sold to be reduced to butter.

SEC. 2. Any owner, operator, or manager of any creamery, whether cooperative or proprietary, who sells or otherwise disposes of any of the milk received at such creamery, shall weigh and carefully sample the same, and shall test such samples, for the purpose of ascertaining the number of pounds of butter fat in such milk sold, or otherwise disposed of, and the gain per cent which is found to be the gain from the churn for that month shall be the one used in ascertaining the actual number of pounds of butter produced from such milk as is sold or otherwise disposed of.

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[1] An act approved November 23, 1900, received too late to be printed in this bulletin, repeals sections 4334–4340 of chapter 183, Vermont Statutes; provides that imitations of and substitutes for butter or cheese shall be plainly labeled; and prohibits the use of such words as "dairy" in marking butter imitations. The State's attorney is given special powers for enforcing.

Cheese factory patrons to have monthly statements. SEC. 3. The owner, operator, or manager of any cheese factory in the State, whether co-operative or proprietary, shall make and deliver to each of the patrons of such factory a statement representing the number of pounds of milk he delivers for each month, together with the test and actual number of pounds of cheese produced by such milk for said month. And the price paid for the same shall be computed on actual number of pounds of cheese.

Monthly statement of operations to be posted in creameries. SEC. 4. Every owner, operator, or manager of a creamery in this State, whether co-operative or proprietary, shall make a statement each month of the total number of pounds of milk received for that month, together with the gain per cent from the churn, and actual number of pounds of butter produced from said milk and cream.

SEC. 5. The statement mentioned in the preceding section shall be posted in a conspicuous place in said creameries.

Penalty. SEC. 6. Any manager or proprietor of any creamery or cheese factory in the State who after request by any person refuses, or neglects for the space of ten days, to comply with any of the provisions of this act shall forfeit to said person ten dollars for each refusal or neglect, to be recovered by an action founded on this statute.

In effect. SEC. 7. This act shall take effect January 1, 1899.

LAWS OF 1898, No. 115.

AN ACT relating to public health. (Approved October 26, 1898.)

State laboratory for examination of milk, etc. SECTION 1. The State Board of Health is authorized to establish and equip with the proper and necessary apparatus, utensils, and instruments a State Bacteriological Laboratory, for the chemical and bacteriological examination of water supplies, milk, and all food products, and the examination of cases and suspected cases of diphtheria, typhoid fever, tuberculosis, malaria, and other infectious and contagious diseases.

Director and his duties. SEC. 2. The State Board of Health shall appoint a director of such Laboratory, who shall hold his office for two years from the first day of December, 1898; and biennially thereafter said Board of Health shall appoint a director of such Laboratory for a similar term. He shall keep a record of all specimens sent to him for examination by residents of the State, and examine these specimens without unnecessary delay. He shall biennially before the first day of January make a full report to the State Board of Health of all matters pertaining to the Laboratory, and shall make such other and special reports as the State Board of Health may ask for. His salary and that of his assistant shall be fixed by the State Board of Health.

SEC. 3. The use of the Laboratory and all investigations therein made shall be free to the people of this State.

Appropriation. SEC. 4. The sum of Five Thousand Dollars is hereby appropriated for the purpose of procuring the proper and necessary apparatus, utensils and instruments for the equipment of such laboratory; and the sum of Eight Thousand Dollars per year is hereby appropriated to pay the salaries, procure the necessary supplies, and to meet the other necessary expenses of said laboratory, which sums shall be expended under the supervision of the State Board of Health. The total annual expense of maintaining said laboratory shall not exceed the sum of Eight Thousand Dollars.

In effect. SEC. 5. This act shall take effect from its passage.

VIRGINIA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 691–693, for—

Code of 1887, title 25, chapter 84, sections 1871 and 1899–1901.—Concerning butter brands, creameries, sale of imitation butter and cheese.

Acts of 1891-92, chapter 526 (sections 1-7).—An act to prevent the adulteration of butter and cheese and the sale of the same, and preserve the public health. (Approved March 1, 1892.)

Acts of 1897-98, chapter 146 (sections 1-4).—An act to prevent deception in the manufacture and sale of imitation butter. (Approved January 29, 1898.)

Recently enacted:

ACTS OF ASSEMBLY, VIRGINIA, 1899-1900, page 694, Chapter 655.

AN ACT to prevent the sale of adulterated and misbranded food in the State of Virginia. (Approved February 27, 1900.)

Board of Agriculture to examine foods. SECTION 1. That for the purpose of protecting the people of the State from imposition by the adulteration and misbranding of articles of food, the board of agriculture shall cause to be procured from time to time, and under the rules and regulations to be prescribed by them, in accordance with section nine of this act, samples of food, beverages, and condiments offered for sale in the State, and shall cause the same to be analyzed or examined microscopically or otherwise by the chemists or other experts of the department of agriculture. **Publication of results.** The board of agriculture is hereby authorized to make such publications of the results of the examinations, analyses, and so forth, as they may deem proper.

Adulterated or misbranded food prohibited. SEC. 2. That no person, by himself, or agent, shall knowingly manufacture, sell, expose for sale, or have in his possession with intent to sell, any article of food which is adulterated or misbranded within the meaning of this act; and any person who shall violate any of the provisions of this act shall be guilty of a misdemeanor, and for **Penalty.** such offenses shall be fined not exceeding two hundred dollars for the first offense, and for each subsequent offense not exceeding three hundred dollars, or be confined in jail not exceeding one year, or both, and such fines, less legal costs and charges, shall be paid into the treasury of the State.

Chemists of Department of Agriculture to assist. SEC. 3. That the chemists or other experts of the department of agriculture shall make, under rules and regulations prescribed by the board of agriculture, examinations of specimens of food, beverages, and condiments offered for sale in Virginia which may be collected from time to time under their directions in various parts of the State. If it shall appear from such examination that any of the provisions of this act have been violated, the commissioner of agriculture shall at once certify the facts to the commonwealth's attorney for the city or county in which the offense shall have been committed, and furnish that officer with a copy of the result of the analysis duly authenticated by the analyst under oath.

Commonwealth's attorneys to prosecute. SEC. 4. That it shall be the duty of every commonwealth's attorney to whom the commissioner of agriculture shall report any violation of this act, to cause proceedings to be commenced and prosecuted without delay for the fines and penalties in such cases provided.

"Food" and "misbranded," defined. SEC. 5. That the term "food," as used herein, shall include all articles of food—candy, condiment, or drink, by man or domestic animals, whether simple, mixed or compound. The term "misbranded," as herein used, shall include all articles of food or articles which enter into the composition of food, the package or label of which shall bear any statement purporting to name any ingredients or substances as being contained or not being contained in such article, which statement shall be false in any particular.

Adulteration defined. SEC. 6. That for the purpose of this act any article of food shall be deemed adulterated—First. If any substance or substances has or have been mixed or packed with it, so as to reduce or lower or injuriously affect its quality or strength so that such product, when offered for sale, shall deceive or tend to deceive the purchaser. Second. If any inferior substance or substances has or have been substituted wholly or in part for the article so that the product when sold shall deceive or tend to deceive the purchaser. Third. If any valuable constituent has been wholly or in part abstracted, so that the product when sold shall deceive or tend to deceive the purchaser. Fourth. If it be an imitation of and sold under the specific name of another article. Fifth. If it be mixed, colored, powdered, coated, polished, or stained in a manner whereby damage or inferiority is concealed, so that such product when sold shall deceive or tend to deceive the purchaser. Sixth. If it contain any added poisonous ingredient, or any ingredient which may render such article injurious to the health of the person consuming it. Seventh. If it be labeled or branded so as to deceive or mislead the purchaser, or purport to be a foreign product when branded so, or an imitation either in package or label of an established proprietary product, which has been trade-marked or patented. Eighth. If it consists of the whole or any part of a diseased, filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal or of an animal that has died otherwise than by slaughter. * * * *Provided*, That an article of food, beverage, or condiment which does not contain any added poisonous ingredient shall not be deemed to be adulterated in the following cases: First. In the case of articles, mixtures, or compounds which may be now, or from time to time hereafter, known as articles of food, beverages or condiments under their own distinctive names and not included in definition fourth of this section. Second. In the case of articles labeled, branded, or tagged so as to plainly indicate that they are mixtures, compounds, combinations, imitations, or blends. Third. When any matter or ingredient has been added to the food, beverage, or condiment because the same is required for the production or preparation thereof as an article of commerce in a state fit for carriage or consumption and not fraudulently to increase the bulk, weight, or measure of the food, beverage, or condiment, or conceal the inferior quality thereof: *Provided*, That the same shall be labeled, branded, or tagged as prescribed by the board of agriculture, so as to show them to be compounds and the exact character thereof: * * * Fourth. Where the food, beverage, or condiment is unavoidably mixed with some harmless extraneous matter in the process of collection or preparation: *Provided further*, That no person shall be convicted under the provisions of this act when he is able to prove a written guaranty of purity in a form approved by the board of agriculture as published in their rules and regulations, signed by the wholesale jobber, manufacturer, or other party from whom he purchased said article.

Exceptions.

Compound, etc., products to be branded. SEC. 7. That the board of agriculture is hereby authorized to cause all compound, mixed, or blended products to be properly branded, and prescribe how this shall be done.

Information to be published. SEC. 8. That it shall be the duty of the board of agriculture to prepare and publish from time to time lists of the articles, mixtures or compounds declared to be exempt from the provisions of this act in accordance with section six. The board of agriculture shall also from time to time fix and publish the limits of variability permissible in any article of food, beverage, or condiment, and these standards, when so published, shall remain the standards before all courts: *Provided*, That when standards have or may be fixed by the secretary of agriculture of the United States they shall be accepted by the board of agriculture, and published as the standards for Virginia.

Standards.

Samples for analysis. SEC. 9. That every person who exposes for sale or delivers to a purchaser any condiment, beverage, or article of food shall furnish, within business hours, and upon tender and full payment of the selling price, a sample of such condiments, beverages, or articles of food to any person duly authorized by the board of agriculture to secure the same, and who shall apply to such manufacturer or vender or person delivering to a purchaser such beverage or article of food, for such sample for such use in sufficient quantity for the analysis of such article or articles in his possession.

Hindrance, etc. SEC. 10. That any manufacturer or dealer who refuses to comply upon demand with the requirements of section nine of this act, or any manufacturer, dealer, or person who shall impede, obstruct, hinder, or otherwise prevent or attempt to prevent any chemist, inspector, or other person in the performance of his duty in connection with this act shall be guilty of a misdemeanor, and shall, upon conviction, be fined not less than ten dollars nor more than one hundred dollars, or be imprisoned not more than one hundred days, or both, and said fine less legal cost shall be paid into the treasury of the State.

Penalty.

No interference with commerce. SEC. 11. That this act shall not be construed to interfere with commerce, or any interstate commerce laws of the United States.

Repeal. SEC. 12. All acts or parts of acts in conflict with this act are, to that extent, hereby repealed.

In effect. SEC. 13. This act shall take effect on and from the first day of July, *nineteen hundred.*

WASHINGTON.

[Chapter 45, session of 1895 (sections 1-25), on pages 693-696 of the Fourteenth Annual Report of the Bureau of Animal Industry, appears to be superseded and repealed by the first act below.]

Recently enacted:

LAWS OF 1899, Chapter 43.

AN ACT regulating the manufacture of dairy products, to prevent deception or fraud in the sale of the same or imitation thereof, providing for the appointment of a dairy commissioner and defining his duties, creating a State board of dairy commissioners and defining their duties, imposing certain duties upon the chemists of State institutions, providing penalties for violations of this law, making an appropriation. (Approved March 7, 1899.)

Unmerchantable, adulterated, etc., milk prohibited.

SECTION 1. It shall be unlawful for any person to sell or offer for sale, or furnish or deliver to any creamery, cheese factory, corporation, person or persons whatsoever, as pure, wholesome, and unskimmed, any unmerchantable, adulterated, skimmed, impure, or unwholesome milk.

Milk standard.

Defining impure, etc., milk and cream.

Preservatives.

SEC. 2. In all prosecutions or other proceedings under this or any other law of this State, relating to the sale or furnishing of milk, if it shall be proven that the milk sold or offered for sale, or furnished or delivered or had in possession with intent to sell or offer for sale, or to furnish or deliver, as aforesaid, as pure, wholesome, or unskimmed milk, contain less than three per centum of pure butter fat, or less than eight per centum of milk solids other than fat, when subject to chemical analysis or other satisfactory tests, or that it, or any part of it, was drawn from cows known by the person complained of to have been within fifteen days before or four days after parturition, or to have any disease or ulcers, or other running sores, then and in either case the said milk shall be held and judged to be unmerchantable, adulterated, impure, or unwholesome, as the case may be, and if it shall appear that cows kept for the production of milk or cream, for market or for sale or exchange, or for manufacturing their milk into articles of food, are kept in a crowded or unhealthy condition, or are being fed on distillery waste or other substance in a state of putrefaction or rottenness, or upon any substance of an unhealthful nature, the milk or cream from same is hereby declared impure and unwholesome. Any milk or cream from the same that has been exposed to or contaminated by emanations, discharges, or exhalations from persons or animals, or to which has been added any borax, boracic acid, salicylic acid, or any other poisonous substance which prevents or tends to prevent the normal bacterial actions of milk, is hereby declared to be impure and unwholesome.

State cheese brand.

Cheese standard.

Skimmed cheese to be marked.

Filled cheese prohibited, fancy cheese permitted.

SEC. 3. The Washington State dairy commissioner is hereby authorized and directed to procure and issue to the cheese manufacturers of the State, and under any regulations as to the custody and use thereof as he may prescribe, a uniform stencil brand bearing a suitable device or motto and the words "Washington State Full Cream Cheese." Every brand issued shall be used on the outside of the cheese, and shall have a different number for each separate manufactory, and the commissioner shall keep a book in which shall be registered the name, location, and number of each manufactory using the said brand, and the name or names of the persons at each manufactory authorized to use the same. It shall be unlawful to use or permit such stencil brand to be used upon any other than full-cream cheese or packages containing the same, and such cheese only as shall contain thirty per centum of pure butter fat and have been manufactured from pure and wholesome milk, from which no portion of the butter fat shall have been removed by skimming or by other process, and in the manufacture of which neither butter nor any substance for butter, or any animal or vegetable fats or oils, have been used, or any fat which has been extracted from milk in any form and returned for the purpose of filling said cheese, shall be stamped with the "State brand." All cheese containing less than thirty per centum of pure butter fat shall be marked "skimmed cheese" in full-face capital letters not less than one inch high, with such ink as is not easily removed by moisture. The manufacture or sale of any cheese containing less than fifteen per centum of pure butter fat, or so-called "filled cheese," is hereby prohibited: *Provided*, That nothing in this section shall be construed to apply to

Cheese from out of state.

Edam, Brickstein, Pineapple, Limburger, Swiss, or hand-made cheese, or any other fancy cheese: *Provided further*, That cheese not made in this State, but which shall be sold or offered for sale in this State, shall be so stamped as to indicate its true character: *And provided further*, That no cheese shall be stamped "full cream" which does not in every particular comply with the requirements of "Washington full cream" cheese, as hereinbefore set forth, except as to place of manufacture.

Annual reports from dairy concerns. **Capacity of cans to be shown.** **False statement.**

SEC. 4. The dairy commissioner shall furnish blanks to all proprietors or managers of creameries, cheese factories, or milk dairies that ship milk and all the vendors and peddlers of milk within the State, for the purpose of making a report of the amount of milk and dairy goods handled, and all owners or managers of such creameries and cheese factories, and all milk dairies, milk vendors, or milk peddlers shall fill out the blank, giving a full and accurate report of the business done during the year, and send it to the dairy commissioner before the first day of November of each year; every person or corporation who shall engage in the business of purchasing or dealing in milk shall attach in a permanent manner to each can furnished by him or it to the producer a tag containing in plain figures a correct statement of the capacity thereof. Any neglect or failure or false statement on the part of any proprietor or manager of such creamery, cheese factory, dairy, or milk vendor or milk peddler, shall be considered a misdemeanor, and upon conviction thereof shall be punished by a fine as provided in section 13: *Provided*, That any information thus furnished shall be published only in such form as to show totals and averages, and not the details of the business of any individual or concern.

Imitation butter prohibited. **Oleomargarine permitted.**

SEC. 5. No person, by himself, his agents, or his servants, shall render or manufacture, sell, offer for sale, expose for sale, or have in his possession with intent to sell or serve for patrons, guests, boarders, or inmates of any hotel, eating house, restaurant, public conveyance, or boarding house or public or private hospital, asylum, school, or eleemosynary or penal institution, any article, product, or compound made wholly or partly out of any fat, oil, or oleaginous substance or compound thereof, not produced directly and wholly at the time of manufacture from unadulterated milk or the cream from the same, with or without harmless coloring matter, which shall be in imitation of yellow butter produced from pure, unadulterated milk or the cream from the same: *Provided*, That nothing in this act shall be construed to prohibit the manufacture and sale of oleomargarine in a separate and distinct form, and in such manner as will advise the consumer of its real character, free from coloration or ingredient that causes it to resemble butter, or the use of the same by patrons, guests, boarders, or inmates of any hotel, eating house, restaurant, public conveyance, or boarding house, when signs are displayed in a conspicuous place that may be easily read from any part of the room.

Imitation cheese prohibited.

SEC. 6. It shall be unlawful for any person to sell or offer for sale or exchange, or have in his possession for sale, any cheese containing any substance except salt, rennet, and harmless coloring matter, other than that produced from pure milk or cream, or both, or from pure skimmed or pure half-skimmed milk.

Dairy commissioner.

SEC. 7. There shall be appointed by the governor, by and with the consent and advice of the senate, one competent person who shall be denominated the dairy commissioner, whose term of office shall continue four years from and after the first Monday in April after his appointment, subject to removal for cause by the governor, or until his successor be appointed and qualified.

Bond required.

SEC. 8. Before entering upon his duties said dairy commissioner shall file with the secretary of State a good and sufficient bond in the sum of five thousand dollars ($5,000) conditioned for the faithful discharge of his duties under this act.

Deputies to be appointed.

SEC. 9. Said dairy commissioner may appoint one or more deputies whenever he is unable to perform all the duties of his office without assistance. They shall hold office at the pleasure of the dairy commissioner who may summarily remove any such deputy whenever in his judgment the public service calls for such removal: *Provided*, No deputy shall be employed at the cost of the State for more than thirty days in any one year: *Provided*, That not more than six deputies be appointed.

Duty of dairy commissioner. SEC. 10. It shall be the duty of the dairy commissioner to devote his entire time and attention to the dairy interests of the State of Washington, to enforce all laws that now exist or that may be hereafter enacted in this State regarding the production, manufacture, or sale of dairy produce, and personally to inspect any articles of milk, butter, cheese, or imitations thereof, made or offered for sale within the State, which he may suspect or have reason to believe to be impure, unhealthful, adulterated, or counterfeit; and to prosecute or cause to be prosecuted any person or persons, firm or firms, corporation or corporations engaged in the manufacture or sale of any adulterated or counterfeit dairy products contrary to law.

Duty of chemists in State institutions. SEC. 11. It shall be the duty of the chemist of any State institution to correctly analyze, without extra compensation, and without other charge to the State than necessary traveling expenses, any and all substances that the dairy commissioner may send to any of them and to report to him without unnecessary delay the result of any analysis so made, and when called upon by said dairy commissioner any such chemist shall assist him in prosecuting violators of the law, by giving testimony, either expert or otherwise.

Powers of dairy commissioner or deputies. SEC. 12. The dairy commissioner or his deputies shall have power, in the performance of their official duties, to enter any creamery, cheese or condensed milk factory, store, salesroom, warehouse, or any place or building where he has reason to believe that any dairy products or imitations of dairy products are kept, made, prepared, sold, or offered for sale or exchange; and to open any cask, tub, package, or receptacle of any kind, containing or supposed to contain any such article, and to examine, or cause to be examined and analyzed, the contents thereof; he may seize or take any such article for analysis: *Provided*, That if the person from whom such sample is taken shall request him to do so, he shall at the same time and in the presence of the person from whom such property was taken, seal up two samples of the article seized or taken, one of which shall be for examination or analysis under the direction of said commissioner, and the other of which shall be delivered to the person from whom the article is taken.

Penalty. SEC. 13. Any person who shall violate any of the provisions of this act, or who shall obstruct the dairy commissioner in the performance of his duties under this act by refusing him entrance to any place enumerated in the preceding section, or by refusing to deliver to him any dairy products or imitations thereof upon demand, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than twenty-five dollars ($25), nor more than one hundred dollars ($100), or by imprisonment for not less than one month or more than six (6) months, or by both such fine and imprisonment.

Compensation and expenses of dairy commissioner. SEC. 14. The dairy commissioner shall receive an annual salary of twelve hundred dollars ($1,200) and his necessary expenses in the discharge of his duties under this act: *Provided*, That such expenses shall not exceed one thousand dollars ($1,000).

Legal assistance. SEC. 15. It shall be the duty of the attorney general or the prosecuting attorney in any county of the State, when called upon by the dairy commissioner, to render any legal assistance in their power to execute the laws and to prosecute cases arising under the provisions of this act: *Provided*, That the dairy commissioner may employ special counsel when necessary.

State board ex-officio. SEC. 16. The secretary of State, the professor of agriculture of the agricultural college and the dairy commissioner are hereby created a State board of dairy commissioners *ex-officio*.

Traveling expenses allowed. SEC. 17. The State board of dairy commissioners shall receive no compensation for their services as such board, but shall be allowed necessary traveling expenses. All accounts for expenditure incurred or made pursuant to the provisions of this act shall be approved and certified by said State board of dairy commissioners before presentation to the state auditor.

Biennial reports. SEC. 18. The State board of dairy commissioners shall biennially, on December first, report to the governor of this State a full account of their actions under this act; also the operations and results of this and any other laws pertaining to the dairy industry of the State; a full account of all expenses and disbursements of the board; as full and complete statistics as it is in their power to collect pertaining to the manufacture, imports and exports of dairy products within the State for the biennial term; and shall make suggestions as to the need of further legislation on this subject.

Expenses. Sec. 19. All expenses incurred under the provisions of this act shall be audited by the State auditor upon bills being presented, properly certified by the board of dairy commissioners, and the said auditor shall, from time to time, draw warrants upon the State treasurer for the amounts thus audited.

Appropriation. Sec. 20. To carry out the provisions of this act, there is hereby appropriated out of the general fund of the State for the term beginning April 1, 1899, six thousand dollars ($6,000).

Disposition of fines. Sec. 21. One-half of all fines collected under the provisions of this act shall be paid to the State treasurer and placed to the credit of the general fund and the remainder to be paid forthwith into the treasury of the county in which the conviction is obtained.

Assistance from railroads, etc. Sec. 22. All clerks, bookkeepers, express agents, railroad officials, employes, or employes of common carriers shall render to the dairy commissioner and his deputies all the assistance in their power in tracing, finding, or discovering the presence of any article named in this act. Any refusal or neglect on the part of such clerks, bookkeepers, express agents, railroad officials, employes, or employes of common carriers to render such friendly aid, shall be a misdemeanor, punishable by fine of not less **Penalty.** than twenty-five ($25) nor more than one hundred dollars ($100), or by imprisonment for not less than one month or more than six months, or by both such fine and imprisonment for each and every offense.

Cream standard. Sec. 23. No person shall sell or offer for sale any cream taken from impure or diseased milk, or any cream that contains less than eighteen per centum of pure butter fat. Any person violating the provisions of this **Penalty.** section shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than twenty-five dollars ($25) nor more than one hundred dollars ($100), or by imprisonment for not less than one (1) month nor more than six (6) months, or by both such fine and imprisonment.

License to peddle milk. Sec. 24. Every person who conveys milk in carriages, carts, or other vehicle for the purpose of selling the same in any city or town in the State of Washington, shall annually on the first day of June, or within thirty (30) days thereafter, procure from the State dairy commissioner a license to sell milk within the limits of said city or town, and shall pay to the said dairy commissioner the sum of one dollar ($1) for each carriage, cart, or other vehicle to be used as provided for in section 29. Licenses shall be issued only in the names of the owners of carriages, carts, and other vehicles and shall, for the purpose of this act, be conclusive evidence of ownership. No license shall be sold, assigned, or transferred; each license shall contain the name, residence, place of business, number of carriages, carts, or other vehicles used, and the number of the **Vehicles to bear signs.** license. Each licensee shall, before engaging in the sale of milk, cause his name, the number of the license, and his place of business to be legibly placed on each outer side of all carriages, carts, or other vehicles used by him in the conveyance or sale of milk. Whoever, without being first licensed under the provisions of this section, sells milk or exposes it for sale from carriages, carts, or other vehicles, or has the same in his custody or possession with intent to sell, shall be deemed guilty of a misdemeanor, and upon con**Penalty.**viction thereof shall be punished by a fine of not less than twenty-five dollars ($25) for each offense, nor more than one hundred dollars ($100), or by imprisonment for not less than one month or more than six months or by both such fine and imprisonment: *Provided*, That nothing in this section shall apply to persons handling or using the milk from not more than two cows.

Milk license for stores, etc. Sec. 25. Every person before selling milk or offering it for sale in a store, booth, stand, or market place in any town or city, shall procure a license from the State dairy commissioner and shall pay to said commissioner the sum of one dollar ($1) yearly, within thirty days after June 1. Any person who neglects to procure such license shall be deemed **Penalty.** guilty of a misdemeanor, and upon conviction shall be punished for each offense by a fine of not less than twenty-five dollars ($25) nor more than one hundred dollars ($100) for each and every offense or by imprisonment for not less than one month or more than six months or by both such fine and imprisonment.

Skimmed milk to be marked.

Penalty.

SEC. 26. No person shall sell or expose for sale in any store or place of business or in any wagon or other vehicle used in the transportation or sale of milk from which cream has been removed or milk commonly called "skimmed milk" without first marking the can or package containing said milk with the words "skimmed milk" in large plain black letters, each letter being at least one inch high and one-half inch wide, said words to be on the side not below the middle of said can or package, where they can be easily seen. Any person violating the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five dollars ($25) nor more than one hundred dollars ($100) for each and every offense, or by imprisonment for not less than one month or more than six months or by both such fine and imprisonment.

Moneys received by commissioner.

SEC. 27. That all moneys received for licenses or from the sale of any and all goods confiscated by the dairy commissioner under this act shall be received by said commissioner and deposited the first of every month with the State treasurer, to be placed in the general fund.

Evidence.

SEC. 28. Possession by any person or firm of an article or substance the sale of which is prohibited by this act shall be considered *prima facie* evidence that the same is kept by such person or firm in violation of the provisions of this act, and the commissioner shall be authorized to seize upon and take possession of such articles or substances, and upon the order of any court which has jurisdiction thereof, he shall sell the same for any purpose other than to be used for food, the proceeds to be paid to the State treasurer and placed to the credit of the general fund.

State brand for creamery butter.

Penalty.

SEC. 29. The State dairy commissioner is hereby authorized and directed to procure and issue to the manufacturers of creamery butter of the State and under such regulations as to the custody and use thereof as he may prescribe a uniform brand bearing a suitable device or motto, and the words "Washington Creamery Butter." Every brand issued shall be used on the wrapper of each package and also on the outside of every package used by him, and shall contain a different number for each separate manufactory, and the commissioner shall keep a book in which shall be registered the name, location, and number of each manufacturer using the said brand. It shall be unlawful to use or permit such brand to be used upon any other than Washington creamery butter or packages containing the same. Any person violating the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined for each offense not less than twenty-five dollars ($25) nor more than one hundred dollars ($100) or by imprisonment for not less than one month or more than six months, or by both such fine and imprisonment.

Process or renovated butter to be marked.

Card displayed on package.

Wrapper marked.

Penalty.

SEC. 30. No person, firm, or corporation shall manufacture, sell, or offer for sale or have in his possession with intent to sell butter known as process butter, unless the package in which the butter is sold has marked on the side of it the words "renovated butter" in capital letters one inch high and one-half inch wide with ink which is not easily removed: *Provided*, That it shall be unlawful for any retailer to sell said butter and unless a card is displayed on the package from which he is selling butter with the following words printed thereon so that it may be easily read by the purchaser "renovated butter," or if it is sold in packages on which a wrapper is used the words "renovated butter" shall be plainly printed on each and every wrapper: *Provided further*, That all process butter shipped from other states shall be subject to the same regulations as provided in this section. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction shall be fined for each and every offense not less than twenty-five dollars ($25) nor more than one hundred dollars ($100) or by imprisonment for not less than one month or more than six months, or by both such fine and imprisonment.

Repeal.

SEC. 31. All acts and parts of acts in conflict with the provisions of this act are hereby repealed.

In effect.

SEC. 32. An emergency exists, and this act shall take effect immediately.

LAWS OF 1899, Chapter 113.

AN ACT to provide against the adulteration of food. (Approved March 13, 1899.)

Adulterated food prohibited. SECTION 1. No person shall, within this State, manufacture for sale, offer for sale, or sell any article of food which is adulterated within the meaning of this act.

Food defined. SEC. 2. The term "food," as used herein shall include all articles used for food or drink by man, whether simple, mixed, or compound.

Adulterated defined. SEC. 3. Any article shall be deemed to be adulterated within the meaning of this act: In the case of food—(1) If any substance or substances have been mixed with it, so as to lower or depreciate, or injuriously affect its quality, strength, or purity. (2) If any inferior or cheaper substance or substances have been substituted wholly or in part for it. (3) If any valuable or necessary constituent or ingredient has been wholly or in part abstracted from it. (4) If it is an imitation of, or is sold under the name of, another article. (5) If it consists wholly or in part, of a diseased, decomposed, putrid, infected, tainted, or rotten animal, or vegetable or fruit substance or article, whether manufactured or not; or in the case of milk, if it is the produce of a diseased animal. (6) If it is colored, coated, polished, or powdered, whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is. (7) If it contains any added substance or ingredient which is poisonous or injurious to health: *Provided*, That the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles or ingredients of articles of food, if each and every package sold or offered for sale be distinctly labeled as mixtures or compounds, with the name and per cent of each ingredient therein and are not injurious to health.

Samples for analysis. SEC. 4. Every person manufacturing, exposing, or offering for sale, or delivering to a purchaser, any article of food included in the provisions of this act, shall furnish to any person interested or demanding the same, who shall apply to him for the purpose, and shall tender him the value of the same, a sample sufficient for the analysis of any such article of food which is in his possession.

Penalties. SEC. 5. Whoever refuses to comply, upon demand with any of the requirements of section 4, and whoever violates any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction shall be fined not exceeding one hundred nor less than fifty dollars, or imprisoned not exceeding ninety or less than thirty days, or both; any person found guilty of manufacturing, offering for sale, or selling any adulterated articles of food under the provisions of this act, shall be adjudged to pay, in addition to the penalties herein provided for, all necessary costs and expenses incurred in inspecting and analyzing such adulterated articles of which said person may have been found guilty of manufacturing, selling, or offering for sale: **Disposition of penalties.** *Provided*, That all penalties and costs for the violation of the provisions of this act shall be paid to the State dairy and food commission, or their agent, and by them paid into the State treasury, to be paid as a fund separate and apart for the use of the State dairy and food commissioner for the enforcement of this act, and called "pure food fund."

Dairy and food commissioner; additional salary. SEC. 6. The State dairy commissioner shall be State dairy and food commissioner, and shall receive, in addition to his salary as dairy commissioner, $300 per year, as extra compensation for enforcing the provisions of this act, and his necessary expense, out of the pure food fund in the discharge of his duties under this act.

Appropriation. SEC. 7. There shall be appropriated for salary of State dairy and food commissioner $600, for two years ending April 1st, 1901, and $1,000 out of the food commission fund for expenses of said commissioner.

Chemists in State institutions to assist. SEC. 8. It shall be the duty of the chemist of any State institution to correctly analyze, without extra compensation, and without extra charge to the State other than necessary expenses, any and all substances that the dairy [and] food commissioner may send to them, and to report to him without [un]necessary delay, the result of any analysis so made, and when called upon by said commissioner, any such chemist shall assist him in prosecuting violations of the law by giving testimony, either expert or otherwise.

Legal assistance. SEC. 9. It shall be the duty of the attorney general, or the prosecuting attorney in any county in the State, when called upon by the dairy commissioner to render any legal assistance in their power to execute the laws and to prosecute cases arising under the provisions of this act: *Provided*, That the dairy commissioner may employ special counsel if necessary.

State board of dairy and food commission. SEC. 10. The State board of dairy commissioners, *ex officio*, shall be "the State board of dairy and food commission." All expenses incurred under the provisions of this act shall be paid out of the "pure food fund," and shall be audited by the State auditor upon bills being presented, properly certified by the board of dairy and food commission, and the State auditor shall from time to time draw warrants upon the State treasurer for the amounts thus audited.

This act shall take effect April 1, 1899.

WEST VIRGINIA.

See Fourteenth Annual Report of the Bureau of Animal Industry, page 697, for—

Code of 1891, chapter 150, sections 20 and 20a.—Concerning adulterated food and imitation butter and cheese.

Acts of 1891, chapter 8 (sections 1-3).—An act in relation to manufacture and sale of oleomargarine, artificial or adulterated butter. (Approved February 16, 1891.)

WISCONSIN.[1]

[The laws of Wisconsin were published on pages 697-703 of the Fourteenth Annual Report of the Bureau of Animal Industry, but have since been issued in different form, as below.]

Dairy commissioner; term, etc. 1. [Section 1410, Statutes of 1898.] The dairy and food commissioner shall be appointed by the governor, by and with the advice and consent of the senate, for a term of two years from the date of his appointment and until his successor qualifies. Vacancies occurring from any cause shall be filled for the remainder of the term by the governor, with the advice and consent of the senate if it shall be in session, or if it is not in session, subject to approval at the session next held after such appointment is made, if the term for which it was made has not expired. **Assistant, chemist, agent, and clerk.** Such commissioner may, with the advice and consent of the governor, appoint an assistant, who shall be an expert in dairy products, and a chemist who shall be a practical analytical chemist; he may also, with such advice and consent, appoint an agent for the inspection of milk dairies, factories, and creameries, and to assist in the work of the dairy and food commission at such times and for such periods of time as may be required in the enforcement of the dairy and food laws. The compensation of such agent shall be three dollars per day for each day of actual service, and his expenses, to be audited by the secretary of State on the presentation of accounts approved by the dairy and food commissioner. Said commissioner may also appoint a stenographer and confidential clerk. The commissioner shall be furnished with a suitable office in the capitol, and with such supplies and printing as may be necessary. He shall as soon as practicable **Report.** after the thirtieth day of September in each even-numbered year make a report to the governor and give therein an itemized statement of all expenses incurred by him, and of all fines collected, with such statistics and other information and suggestions as he may regard of value.

Powers and duties. 2. [Section 1410*a*, Statutes of 1898.] It shall be the duty of the commissioner to enforce the laws regarding the production, manufacture, and sale of dairy products, the adulteration of any article of food or drink or of any drug, and personally or by his assistants to inspect any milk, butter, cheese, lard, syrup, coffee, tea, or other article of food or drink or drug made or offered for sale within this State which he may suspect or have reason to believe to be impure, unhealthful, adulterated, or counterfeit, and to prosecute or cause to be prosecuted any person, firm, or corporation engaged in the manufacture or sale of any adulterated or counterfeit article or articles of food or drink or drug in violation of law. **Legal assistance.** The district attorney of the county in which a violation of any such law has occurred shall, when called upon by the commissioner or either of his assistants to do so, give all the aid he can to secure the execution of the law and shall prosecute cases arising under the provisions of this chapter or other provisions of these statutes relating to the adulteration of food, drinks, and drugs and their sale. Such commissioner shall have power to appoint, with the approval of the governor, special counsel to prosecute or assist in the prosecution of any case arising under the provisions of these statutes imposing a penalty for adulterating dairy products or practicing deception or fraud in the manufacture and sale thereof. **Disposition of fines.** All fines collected in prosecutions begun or caused to be begun by the dairy and food commissioner or either of his assistants shall be paid into the State treasury.

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[1] Arranged as in "Laws of Wisconsin, relating to the office and duties of the dairy and food commissioner, and the adulteration of butter, cheese, milk, and other foods, drugs, and medicines, with rulings thereon," *published in 1899 by the dairy* and food commissioner.

Authority for inspections. 3. [Section 1410*b*, Statutes of 1898.] The commissioner, his agent or assistant shall have free access to any barn or stable where any cow is kept or milked, or to any factory, building, dairy, or premises where any dairy product is manufactured, handled, or stored, when the milk from such cow or such product is to be sold or shipped, and may enforce such measures as are necessary to secure perfect cleanliness in and around the same and of any utensil used therein, and to prevent the sale of milk from cows diseased or fed upon unwholesome food. Either of them may enter any place or building in which there is reason to believe that any food, drink, or drug is made, prepared, sold, or offered for sale, and may open any package or receptacle of any kind containing, or which is supposed to contain, any article of food, drink, or drug, and examine or analyze the contents thereof. **Samples.** Any such article or sample thereof may be seized or taken for the purpose of having it analyzed; but if the person from whom it is taken shall so request, at the time of taking, the officer shall then and in the presence of such person securely seal up two samples of such article, one of which shall be for analysis under the direction of the commissioner, the other shall be delivered to the person from whom the sample or article was obtained. **Cheese brands.** Said commissioner shall adopt a uniform stencil, bearing a suitable device or motto, a number and the words "Wisconsin full-cream cheese" and a space for a number, and upon proper application therefor and under such regulations as to the custody and use thereof as he may prescribe, issue the same, with the proper number inserted, to the proprietor or manager of any cheese factory in this State; he shall enter in a book kept for that purpose the name, location and number of each factory using such stencil, no number being duplicated, and the name of the person thereat authorized to use the same.

Analyses. 4. [Section 1410*c*, Statutes of 1898.] The State board of health, medical officers of local boards of health, town and village boards or common councils may submit to the dairy and food commissioner samples of water or other drinks, of food or drugs for analysis, and the same shall be examined and reports made of the analysis thereof to the body or officer submitting the same as soon as practicable; such reports shall fully specify the results of the analysis and be signed by such commissioner; they shall be accepted in all courts and places as prima facie evidence of the properties or condition of the articles analyzed.

Farmers' institutes. 5. [Section 1410*d*, Statutes of 1898.] The governor may authorize the commissioner or his assistants, when not engaged in the performance of other official duties, to give such aid in farmers' institutes, dairy and farmers' conventions and the agricultural department of the State university as may be deemed advisable. For the necessary expenses of making the analyses contemplated in the foregoing sections the commissioner may incur an annual expense of not to exceed six hundred dollars, the accounts for which, when verified and itemized and appproved by the governor shall be audited by the secretary of State.

Persons obstructing; penalty. 6. [Section 4607*h*, Statutes of 1898.] Any person who shall obstruct the dairy and food commissioner of this State or either of his assistants in the performance of their duty by refusing him entrance to any place he is authorized to enter or by refusing to deliver to him a sample of any article of food, drink, or drug made, sold, offered or exposed for sale by the person to whom request therefor is made, if the value thereof is tendered, shall be punished for the first offense by fine not exceeding twenty-five dollars, and for each subsequent offense by fine not exceeding five hundred dollars nor less than fifty dollars.

Adulterated milk. 7. [Section 4607, Statutes of 1898]. Any person who shall sell or offer for sale, furnish, or deliver, or have in possession with intent to sell or offer for sale or furnish or deliver to any creamery, cheese factory, cor-

Penalty.

poration, or person as pure, wholesome and unskimmed any unmerchantable, adulterated, impure, or unwholesome milk shall be punished by a fine of not less than twenty-five dollars nor more than one hundred dollars.

Milk standard.

8. [Section 4607*a*, Statutes of 1898.] In all prosecutions under the preceding section or any other section of these statutes for the sale of unmerchantable, adulterated, impure, or unwholesome milk any milk which shall be proven to contain less than three per centum of pure butter fat, when subjected to chemical analysis or other satisfactory test, or that has been diluted, or any part of the cream of which has been abstracted, or that, or any part of it, was drawn from a cow known to the defendant to have been at the time it was drawn within fifteen days before or less than four days after parturition, or which was so known to have any disease, ulcers or other running sores, then and in either such case the milk sold or offered for sale, furnished, or delivered or had in possession with intent to sell it, offer it for sale or furnish or deliver it as pure, wholesome, and unskimmed shall be held or found to be unmerchantable, adulterated, impure, or unwholesome, as the fact may be. Proof of adulteration or skimming may be made with such standard tests and lactometers as are used to determine the quality of milk or by chemical analysis.

Diseased cows; unsanitary conditions; slops.

9. [Section 1, chapter 313, laws of 1899.] No person by himself or agent shall offer for sale, furnish, or deliver, or have in possession with the intent to sell, or offer for sale, or furnish or deliver, milk or cream drawn from sick or diseased cow or cows kept in filthy and unsanitary condition, or cows fed on refuse or slops from distilleries or vinegar factories, unless such refuse or slop be mixed with other dry sanitary grain or food to a consistency of a thick mush.

Foreign substances in milk.

10. [Section 2, chapter 313, laws of 1899.] No person by himself or agent shall offer for sale or furnish or deliver or have in possession with the intent to sell, offer for sale, or furnish or deliver, any milk or cream having therein or containing in any amount any foreign substance or coloring matter or any chemical or preservative, whether for the purpose of increasing the quantity of milk or cream or for improving its appearance, or for preserving the condition of sweetness thereof, or for any purpose whatever, provided that nothing in this act shall be construed to prohibit the sale of pasteurized milk or cream, to which viscogen or sucrate of lime has been added solely for the purpose of restoring the viscosity, if the same be distinctly labeled in such manner as to advise the purchaser of its true character.

Penalty.

11. [Section 3, chapter 313, laws of 1899.] Any person violating any of the provisions of this act shall, upon conviction, be fined not less than twenty-five nor more than one hundred dollars for each and every offense.

Imitation cheese prohibited.

Skim cheese size regulated.

Imitation butter prohibited.

Penalty.

Oleomargarine permitted.

12. [Section 4607*c*, Statutes of 1898.] Any person who shall, by himself, his agent or servant, manufacture, buy, sell, offer, ship, consign, expose, or have in possession for sale any cheese manufactured from or by the use of skim milk to which there has been added any fat which is foreign to such milk, or who shall by himself, his agent, or servant, manufacture, buy, sell, offer, ship, consign, expose, or have in possession for sale, within this State, any skimmed-milk cheese, or cheese manufactured from milk from which any of the fat originally contained therein has been removed, except such last mentioned cheese is ten inches in diameter and nine inches in height, or who shall, by himself, his agent or servant, render or manufacture, sell, ship, consign, offer, or expose for sale or have in possession with intent to sell, any article, product, or compound made wholly or partly out of any fat, oil, or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, and without the admixture or addition of any fat foreign to said milk or cream, which shall be in imitation of yellow butter produced from such milk or cream, with or without coloring matter, shall, for the first offense, be punished by fine of not more than five hundred dollars nor less than fifty dollars, and for each subsequent offense by imprisonment in the county jail not to exceed sixty days nor less than ten days, or by fine of not more than five hundred dollars nor less than one hundred dollars, or by both such fine and imprisonment. Nothing in this section shall be construed to prohibit the manufacture or sale of oleomargarine in a separate and distinct form and in such manner as will advise the consumer of its real character, and free from coloration or ingredient that causes it to look like butter.

Notice of sale or use of imitation butter.

13. [Section 4607*d*, Statutes of 1898.] Any person who shall sell or offer for sale to any person who asks, sends, or inquires for butter, any oleomargarine, butterine, or any similar substance made in imitation or semblance of pure butter, not made entirely from the milk of cows, with or without coloring matter, or who shall expose for sale oleomargarine, butterine, or any similar substance not marked and distinguished on the outside of each tub, package, or parcel thereof by a placard with the word "oleomargarine," and not having also upon every open tub, package, or parcel thereof a placard with the word "oleomargarine," such placard in each case to be printed in plain, uncondensed Gothic letters not less than one inch long, and not containing any other words thereon, or who shall sell oleomargarine, butterine, or any similar substance from any dwelling, store, office, or public mart, without having conspicuously posted thereon the placard or sign, in letters not less than four inches in length, "oleomargarine sold here" or "butterine sold here," which placard or sign shall be approved by the dairy and food commissioner of this State, or who shall sell or deliver from any cart, wagon, or other vehicle, upon the public streets or ways, oleomargarine, butterine, or any similar substance, without having on the outside of both sides of said cart, wagon, or other vehicle a placard, in uncondensed Gothic letters not less than three inches in length, "licensed to sell oleomargarine," or who shall furnish or cause to be furnished in any hotel, boarding-house, restaurant, or at any lunch counter, oleomargarine, butterine, or any similar substance to any guest or patron thereof, without first notifying such guest or patron that the substance so furnished is not butter, shall be punished as provided in the last preceding section.

Penalty.

Imitation butter and cheese in State institutions prohibited.

14. [Section 4607*e*, Statutes of 1898.] Any person who shall knowingly or negligently buy or procure for use as food in any of the charitable, correctional, or penal institutions of this State any butter or cheese not made wholly and directly from pure milk or cream, salt, and harmless coloring matter, shall be fined not exceeding fifty dollars nor less than twenty-five dollars for the first offense, and for each subsequent offense shall be punished by imprisonment in the county jail not more than ninety days nor less than ten days, or by fine not exceeding one hundred dollars nor less than fifty dollars, or by both fine and imprisonment.

Penalty.

Renovated butter to be marked.

15. [Section 1, chapter 76, laws of 1899.] No person by himself or agent shall sell, exchange, or deliver, or expose for sale or offer for sale renovated butter, or butter which has been melted and its rancidity removed or masked, and which has been regranulated, colored, and prepared in imitation or in semblance of genuine creamery butter, unless the substance be marked distinctly on the outside of each and every package or parcel thereof by a label printed with the words "Renovated Butter," and without having on each and every open tub, package, or parcel thereof a placard with the words "Renovated Butter," such placard or brand in each case to be printed in plain, uncondensed Gothic capitals not less than one inch long, and such placard shall contain no other words thereon.

Penalty.

16. [Section 2, chapter 76, laws of 1899.] Any person who shall violate any of the provisions of this act [the preceding paragraph] shall be guilty of a misdemeanor, and upon conviction thereof be fined not less than twenty-five nor more than one hundred dollars.

Cheese falsely labeled.

17. [Section 4438*g*, Statutes of 1898.] Any person who shall sell, offer for sale, ship, or consign cheese labeled with a false brand or label as to the quality of the article, or shall use any stencil or label furnished by the dairy and food commissioner of this State and bearing the words "Wisconsin full-cream cheese," otherwise than upon the bandage on the side of full-cream cheese and upon the package containing the same, shall be punished by fine of not more than fifty dollars nor less than twenty-five dollars.

Cleanliness of dairy cows and utensils.

18. [Section 4607*j*, Statutes of 1898.] Any person owning or managing a dairy, the product of which is sold for family use, who shall feed his cows upon unwholesome food or keep them in unclean stables or handle the milk with unclean utensils shall be deemed guilty of a misdemeanor and upon conviction thereof be fined not less than twenty-five dollars nor more than one hundred dollars for the first offense, and not less than one hundred dollars nor more than two hundred dollars for each subsequent offense.

Penalty.

Wrongful use of milk. **Fraudulent accounts.** **Penalty.**

19. [Section 1494*a*, Statutes of 1898.] Any butter or cheese manufacturer who shall knowingly use or allow any other person to use for the benefit of himself or any other person than he who is entitled to the benefit thereof any milk or cream from the milk brought to him, without the consent of the owner thereof, or who shall refuse or neglect to keep or cause to be kept a correct account (which shall be open to the inspection of any person furnishing milk to him) of the amount of milk daily received, or of the number of pounds of butter, and the number and aggregate weight of cheese made by him each day, or of the number of cheese cut or otherwise disposed of and the weight of each, shall for each and every offense forfeit not less than twenty-five nor more than one hundred dollars, one-half of which shall be paid to the person upon whom any such fraud has been committed and who first made complaint thereof; the remainder shall be paid to the school fund.

Unwholesome provisions. **Penalty.**

20. [Section 4599, Statutes of 1898.] Any person who shall knowingly sell any kind of diseased, corrupted, or unwholesome provisions, whether for meat or drink, without making the same fully known to the buyer, shall be punished by imprisonment in the county jail not more than six months or by fine not exceeding one hundred dollars.

Sale of adulterated food prohibited. **Penalty.** **Food defined.**

21. [Section 4600, Statutes of 1898.] Any person who shall, by himself, his servant, or agent or as the servant or agent of any other person, sell, exchange, deliver, or have in his possession with intent to sell, exchange, offer for sale, or exchange any drug or article of food which is adulterated, shall be fined not less than twenty-five dollars nor more than one hundred dollars or be imprisoned in the county jail not less than thirty days nor more than four months. The term "drug," as used in this section, shall include all medicines for internal or external use, antiseptics, disinfectants, and cosmetics. The term "food," as used herein, shall include all articles used for food or drink by man, whether simple, mixed, or compound.

22. [Section 4601, Statutes of 1898.] An article shall be deemed to be adulterated within the meaning of the preceding section:

1. In the case of drugs: * * *

When adulterated.

2. In the case of food: First, if any substance or substances have been mixed with it, so as to lower or depreciate or injuriously affect its strength, quality, or purity; second, if any inferior or cheaper substance or substances have been substituted wholly or in part for it; third, if any valuable or necessary ingredient has been wholly or in part abstracted from it; fourth, if it is an imitation of or sold under the name of another article; fifth, if it consists, wholly or in part, of a diseased, infected, decomposed, putrid, tainted, or rotten animal or vegetable substance or article, whether manufactured or not; sixth, if it is colored, coated, polished, or powdered, whereby damage or inferiority is concealed, or if by any means it is made to appear better or of greater value than it really is; seventh, if it contains any added substance or ingredient which is poisonous, injurious, or deleterious to health, or any deleterious substance not a necessary ingredient in its manufacture: *Provided*, That the provisions of this or the preceding section shall not apply to mixtures or compounds recognized as ordinary articles of food if the same be distinctly labeled as mixtures or compounds and from which no necessary ingredient in their preparation is eliminated.

WYOMING.

REVISED STATUTES, 1899.[1]

Milk may be sold Sundays.

SEC. 2644. It shall be unlawful for any person or persons, company, or corporation to keep open any barber shop, store, shop, or other place of business for the transaction of business therein upon the first day of the week, commonly called Sunday: *Provided*, This section shall not apply to * * * vendors of ice, milk, fresh meat, and bread, except as to the sale of liquors and cigars. Any person, company, or corporation who shall violate the provisions of this section, shall, on conviction thereof, be fined in a sum of money not less than twenty-five dollars, nor more than one hundred dollars, for each offense.

Adulterating foods; penalty.

SEC. 5109. Every person who adulterates or dilutes any article of food, drink, drug, medicine, spirituous or malt liquor, or wine, or any article used in compounding them, with a fraudulent intent to offer the same for sale, or to cause or permit the same to be offered for sale, as unadulterated and undiluted; and every person who fraudulently sells or keeps or offers for sale the same as unadulterated or undiluted shall be punished by a fine of not more than five hundred dollars, or imprisonment in the county jail not more than sixty days, or by both.

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[1] Sec. 2644=S. L. 1888, chapter 86, section 2. 5109 and 5110=R. S. 1887, sections 1007 and 1008.

Sale of unwholesome foods; penalty. SEC. 5110. Every person who knowingly sells or keeps, or offers for sale, or otherwise disposes of, or tries to dispose of, any article of food, drink, drug, or medicine, knowing that the same has become tainted, decayed, spoiled, or otherwise unwholesome or unfit to be eaten or drunk shall be fined not more than fifty dollars, or imprisoned in the county jail not more than thirty days, or both.

CANADA.

See Fourteenth Annual Report of the Bureau of Animal Industry, pages 703-708, for—

49 Victoria, chapter 42 (section 1).—An act to prohibit the manufacture and sale of certain substitutes for butter. (Assented to 2d June, 1886.)

52 Victoria, chapter 43 (sections 1-11).—An act to provide against frauds in the supplying of milk to cheese, butter and condensed milk manufactories. (Assented to 2d May, 1889.)

— Victoria, chapter — (sections 1-11).—An act to prevent the manufacture and sale of filled or imitation cheese, and to provide for the branding of dairy products.

60 and 61 Victoria, chapter 21 (sections 1-9).—An act to provide for the registration of cheese factories and creameries, and the branding of dairy products, and to prohibit misrepresentation as to the dates of manufacture of such products. (Assented to 29th June, 1897.)

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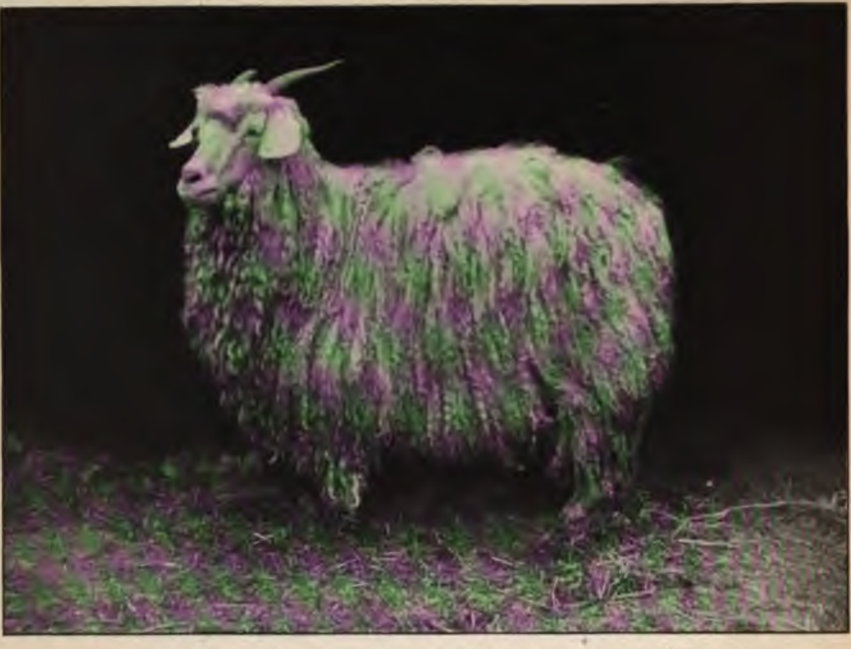

Fig. 1.—Madam Ladysmith, Three Years Old. Fleece, 8 Pounds.

(Photograph furnished by C. P. Bailey & Sons Company, San Jose, Cal.)

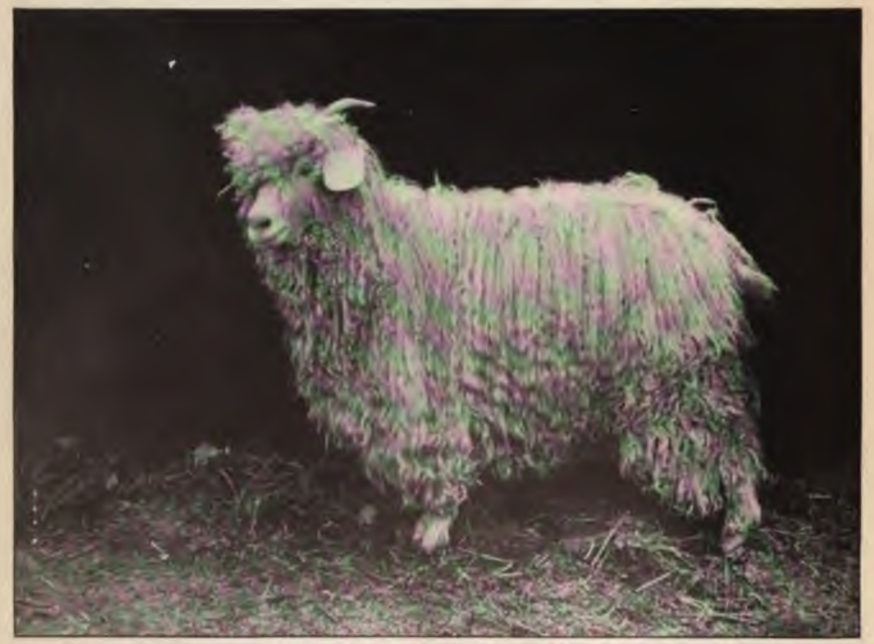

Fig. 2.—Princess Monterey, Ten Months Old. Fleece, 4½ Pounds.

(Photograph furnished by C. P. Bailey & Sons Company, San Jose, Cal.)

BULLETIN No. 27. (B. A. I. 155.)

U. S. DEPARTMENT OF AGRICULTURE,

BUREAU OF ANIMAL INDUSTRY.

D. E. SALMON, D. V. M., Chief.

INFORMATION

CONCERNING

THE ANGORA GOAT.

BY

GEORGE FAYETTE THOMPSON,

Editorial Clerk, Bureau of Animal Industry.

WASHINGTON:
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1901.

LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
Washington, D. C., November 23, 1900.

SIR: I have the honor to transmit herewith the manuscript of an article entitled "Information concerning the Angora goat," by Mr. George Fayette Thompson, editorial clerk of this Bureau. There is much interest in this industry, and the Department receives thousands of letters of inquiry concerning Angora goats. An effort is made in this manuscript to treat all the topics that have been the subjects of these letters of inquiry.

It is estimated that there are about 400,000 Angora goats in the United States, and that our annual production of mohair is over a million pounds. It appears, therefore, that the industry should receive some attention from this Department, at least in so far as the collection and dissemination of information may be concerned, and I recommend that this article be published as Bulletin No. 27 of the Bureau of Animal Industry.

Respectfully,

D. E. SALMON,
Chief of Bureau.

Hon. JAMES WILSON,
Secretary.

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INFORMATION CONCERNING THE ANGORA GOAT.

PRELIMINARY REMARKS.

The goat has accompanied civilization into all parts of our country—not numerously, but persistently. He is everywhere, and is well known. There are very few people who have not seen a goat, and there are fewer still, no doubt, who have seen many goats. The comic writers, playing upon his peculiar habits, have brought him into disrepute, although these habits, to a large extent, are such as are recommending him for special favor at this time. His fame is as a denizen of vacant lots and back alleys, subsisting upon anything or nothing, and a foe to everything. So far as the general public is concerned, he has not been reckoned with as a useful animal and has been tolerated only as a pet for children.

During more recent years a great interest has been awakened in the goat, and it now seems that he is about to receive the consideration that is due him. One of the causes contributing to this awakening was an article in the Yearbook of this Department for 1898, entitled "Keeping goats for profit," by Capt. Almont Barnes, of the Division of Statistics of this Department. The information which this article contained was widely disseminated. The Yearbook was distributed to the extent of half a million copies, and, besides, in order to meet the growing demand, the article was reprinted separately and mailed to many thousands of inquirers at the Department for information on the subject of goats; and not alone the agricultural papers, but the daily press as well, took up the matter and exploited the good points of the goat industry. The article set forth, among other things, the great value of the goatskins which we import annually, and how we ourselves might easily produce them; the usefulness of the carcass for food, especially of the Angora breed; the exceedingly small expense involved in raising the animal, owing to his habits of feeding upon that vegetation which is in greatest abundance and which other ruminants refuse; the million of acres of land in the United States that might be made available for goat raising which otherwise would remain, as heretofore, unemployed.

The result of this wide distribution soon developed the fact that the goat was present in the United States in larger numbers than was supposed. This is especially true of the Angora breed; in fact, the number of common goats in the United States is less than 50,000. Although very little has been said or written about Angora goats during the last forty years, they have been extensively bred in the Western States and Territories, especially in Texas, New Mexico, Nevada, Florida, California, and Oregon. In a general sense, all those animals which are a cross in any degree of the Angora goat are considered as Angoras, for the Angora and the common goat readily cross, and the latter frequently becomes the foundation stock of a good flock of fleece-bearing animals.

It is the purpose of this article to deal with the Angora goat only, and the effort is made to answer such questions as have been received by the Bureau from all parts of the country. These answers are based upon the experiences of those who have raised them, some of whom have been in the business forty years and more. Differences of opinion are found to exist on several important points, where each contestant appears to occupy plausible premises; but this is not at all strange when the history of the Angora goat is considered, for it is not certain that all of the animals imported as purebreds were pure; indeed, it is held by some of our leading breeders that there is no longer in Turkey or elsewhere any such thing as a purebred Angora goat. Besides, there has been no general register for Angora stock in the United States until within a year or two, and each breeder has been at liberty to judge points for himself. If a general Angora register had been established thirty or forty years ago, the industry would now be conducted upon somewhat definite lines, and most of the questions now arising as to points in breeding would have been settled. In this connection it should be stated that C. P. Bailey & Sons Company, of San Jose, Cal., have kept a private register of their goats since 1867, but there appears to be no other similar record.

ORIGIN AND HISTORY.

The purpose of this paper is to give prominence to those phases of the Angora goat industry that are of practical importance; therefore a brief space only will be devoted to the history of the breed.

Naturalists generally agree that there are about ten species of wild goats, all confined to Europe and the Himalayas of Asia. These are divided into two groups, as follows:

I. *The ibexes.*—These, according to Hayes, have, as a distinctive characteristic, horns "flat in front, with a horizontal triangular section, furnished with large transversal knots."

II. *Goats proper.*—These, according to Hayes, have horns "compressed and carinated in front," and, according to Wood, "may be distinguished from the ibex and the sheep by the peculiar formation of the horns, which are compressed and rounded behind and furnished with a well-developed keel in front."

The second group is subdivided into two subspecies—*Capra falconeri* and *Capra œgagrus*. The latter is also known as the Paseng, the Bezoar goat, or wild goat of Persia, and is generally accepted as the goat from which the Angora is descended through *Capra hircus*, which is claimed to be the origin of all the common breeds of goats.

As to the parent of the Angora stock, there is a difference of opinion between the two best-known writers on the subject—John L. Hayes, author of The Angora Goat, etc. (1882), and S. C. Cronwright Schreiner, author of The Angora Goat (1898). The one takes the position that it is descended from *Capra falconeri*, the other from *Capra œgagrus*. Owing to the additional information which has been obtained since the appearance of Hayes's book and which is embodied in Schreiner's work, there can hardly remain a doubt of the correctness of the contention that the Angora goat descended from *Capra œgagrus*.

Schreiner, who has made extensive research, has described these two subspecies as follows:

Capra falconeri has a beard which extends from the chin to the shoulders and chest, and long spirally twisted horns, the twist being outward from the base. The males, when old, become whitish all over. The ewes have a beard confined to the chin, and small horns with a slight spiral twist. It is a native of the Western Himalayas, northern Afghanistan, and possibly of Persia; it is also found generally in Cashmere and on the Tibetan side of the Himalayas. Fossil remains show that it is one of the oldest types of goats.

Capra ægagrus[1] is chiefly remarkable for its enormous horns, which are larger proportionally than in any other ruminant animal; they approximate the triangular in form, transversely rigid, and are bent backward as in the domestic varieties, being scimitar-like in shape of curve, and having no spiral twist. Large horns of *Capra ægagrus* measure 40 inches along the curve, but a length of upward of 52¼ inches, with a basal girth of 7 inches, has been recorded. It stands somewhat higher than any of the domesticated varieties of the goat (an adult male stood 37 inches at the withers), from which it further differs in its short and powerful neck, its stouter limbs, and slender body. In the female the horns are exceedingly diminutive or are altogether wanting. The fur, which over the greater part of the body is short, is of a grayish brown color, with a black line running along the entire length of the back, while the under surface of the neck and the beard, which is present in both sexes, are of a brown color. In the winter coat the hair on the neck and shoulders is rather longer than elsewhere, and in the same season, in the colder part of the animal's habitat, a coat of woolly fur is developed beneath the hair.

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[1] There is evidence that in classic times this goat was widely distributed over the Grecian Archipelago, although in Europe it is now found only in Crete, the island of Antemelo, in the Cyclades, and perhaps also in Guire to the northeast of Eubœa. Eastward it is found in the hills and mountains of Asia Minor, being especially common in the Taurus range, and it extends thence through Persia into Baluchistan, Sind, and Afghanistan. In India its range does not extend beyond the western side of Sind. It is found in Sind and Baluchistan in hills a little above the sea level; in the mountains of Persia it ascends to an elevation of 11,000 feet to 12,000 feet.—*Schreiner.*

The Angora breed of goats originated in the vilayet of Angora, in Asia Minor, but it is not known when this was. Some have ventured to say that it was 2,400 years ago. There is pretty strong evidence which goes to show that they were a distinctive breed when Moses was leading the Israelites out of Egypt. Goats' hair was spun by the Israelites for curtains and other purposes for use in the temple.[1] In the story recorded in I Samuel (chapter 19) of the artifice of Michal in deceiving the messengers of Saul by placing an image in the bed in place of David and giving it a pillow of goats' hair, is believed by Pennant to refer to a pillow made of the Angora fleece.

The city Angora, or Enguri, the capital city of the vilayet of Angora, is the ancient Ancyra, and is located about 220 miles south by southeast from Constantinople. Angora was the seat of one of the earliest Christian churches, and was probably established by the Apostle Paul. The province is mountainous to a considerable extent and furrowed by deep valleys. It is about 2,900 feet above the level of the sea. Of the climate Mr. H. A. Cumberbatch, British consul at Angora (1895), and quoted by Schreiner, says:

> The climate is extreme. In the months of January and February the thermometer will mark a minimum of 10° F. for several days at a time, reach as far as 0° F., whilst in June and July the maximum readings of 85° F. are maintained day after day, with little or no rain. The country is covered with snow in the winter, rain and snow falling frequently. In 1894 the total rainfall at Angora was 8.12 inches, but that was an exceptionally dry season. For the first six months of 1895 the rainfall was 10.10 inches, which is somewhat above the average; the heaviest rainfall in twenty-four hours having been 1.20 inches.

It was here that this famous goat reached its perfection—and such a state of perfection as has not yet been reached by the goats of either the Cape of Good Hope or the United States. That the altitude, the soil, or the climate, or all of them together, had much influence in producing this fleece-bearing goat is supported by strong evidence. Dr. John Bachman and the Encyclopædia Britannica both state that the fineness of the hair of the Angora goat may perhaps be ascribed to some peculiarity in the atmosphere, "for it is remarkable that the cats, dogs, sheep, and other animals of the country are to a certain extent affected in the same way as the goats." The same opinion was expressed by Captain Conolly, quoted by Southey (1848): "It is remarkable that wherever these goats exist the cats and greyhounds have long silky hair also—the cats all over their bodies, the greyhounds chiefly on their ears and tails." These statements lead Schreiner to the conclusion that the atmosphere is the chief factor. He says: "At any rate, there seems to be no doubt that a limited and comparatively well-defined region around the town of Angora possesses in a degree unapproached elsewhere in Asia Minor, and probably in the world, those conditions favorable to the development of the soft, silky, lustrous white mohair goat." Too much credit must not be given to the atmosphere of Angora in the production of mohair. That it has a marked influence on animals anywhere is generally accepted. The experience of the Angora breeders of the Cape of Good Hope and the United States shows that, with the best animals, a fleece equal to any produced by Turkey may be obtained. There are other and stronger reasons why the mohair of these two countries is not equal to that of Angora province, chief among which is the adulteration of the blood. Besides, the breeders of this country have learned that the feed of the animal has a telling influence on the quality of the mohair in the same way that it has a pronounced effect upon the meat.

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[1] Take ye from among you an offering unto the Lord: whosoever is of a willing heart, let him bring it, an offering of the Lord; gold, and silver, and brass, and blue, and purple, and scarlet, and fine linen, and goats' hair.—Exodus xxxv, 5, 6.

And every man, with whom was found blue, and purple, and scarlet, and fine linen, and goats' hair, and red skins of rams, and badgers' skins, brought them.—Exodus xxxv, 23.

And all the women whose heart stirred them up in wisdom spun goats' hair.—Exodus xxxv, 26.

And he made curtains of goats' hair for the tent over the tabernacle: eleven curtains he made them. The length of one curtain was thirty cubits, and four cubits was the breadth of one curtain: the eleven curtains were of one size.—Exodus xxxvi, 14, 15.

Mr. Henry O. Binns, who had about twenty years of experience with these goats in the vilayet of Angora, says the pure animals were about bred out in 1863. The reason for this was the extensive crossing with the common Kurd goat, reference to which has already been made. As early as 1839 there ceased to be a demand for the spun yarn of Asia Minor, owing to the fact that Europe could spin the yarn at much less cost; but there was a European demand for the raw hair which exceeded the supply. This condition of things led to complications and a mixture of breeds from which the mohair world has not yet recovered. There can hardly remain a doubt, however, that, with the recent renewed interest in the industry, and with the intelligence that the breeders will bring to bear, the Angora goat industry will soon be placed on the highest plane.

THEIR HISTORY IN THE UNITED STATES.

The history of the Angora goat in the United States has been marred by the carelessness or indifference of occasional writers for the press who have been often inaccurate as to dates or facts, and also by others whose interests have doubtless led them into exaggerations. The real facts of its history in the United States, however, are so few and so simple as to prompt that venerable breeder, William M. Landrum, to say that they would make but a very small book.

During the Administration of President Polk, the Sultan of Turkey requested of him that he recommend some one who would experiment in the culture of cotton in Turkey. Accordingly, Dr. James

B. Davis, of Columbia, S. C., was recommended, and he received the appointment. The work done by Dr. Davis appeared to be highly gratifying to the Sultan, and so, upon his return, in 1849, the Sultan, desiring to reciprocate the courtesy of the President, presented him with nine of the choicest goats in his dominion. Col. Richard Peters, writing in 1876, says of these animals: "These doubtless were selected from the herds of Angora, a district of country lying among the Taurus Mountains, which traverse Asiatic Turkey, and which derives its name from its principal city, situated about 200 miles east of Constantinople." It does not seem, therefore, that Dr. Davis encountered any great difficulty in securing this first importation of Angora goats into this country; but the following extract from the Country Gentleman of 1856, somewhat romantic and a little exciting, was signed by one Richard Allen, of Tennessee. The article, in full, shows that he was probably of that class of writers of history whose personal interests were to be subserved:

> It may not be out of place in this connection to remark that great credit is due to Dr. Davis, of South Carolina, for the enterprise he exhibited in the introduction of the goat to this country. He was at the time in the employ of the Turkish Government, at a salary of $15,000, engaged in experiments upon the growing of cotton in the Sultan's dominions. He went out upon the recommendation of President Polk, to whom an application was made by the Turkish Government for the services of some competent Southern gentleman familiar with cotton culture. While there he determined to procure the goat from its native wilds. The story of the journey would be too tedious for my brief letter, and I will merely add that, with an expensive outfit at Constantinople, a perilous journey of months, and the loss of many men and camels, he succeeded in capturing and carrying off eleven of the famous animals, whose fleeces, in the shape of shawls, are so highly prized and coveted by the ladies of all civilized nations and for which prices almost startling have been paid by the wealthy.

Such a tale of fortitude and determination, added to the information in another paragraph in the same letter which stated that the entire yield of the particular flock about which he was then writing had been engaged in the city of New York at $8.50 per pound, from which point it was to be shipped to Paisley, Scotland, for manufacture into the shawls mentioned above, no doubt assisted in the sale of goats at $1,000 each.

In 1863, Hon. George A. Porter, of Baltimore, himself a breeder of Angoras, wrote to Mr. Diehl that, while occupying the post of United States consul at Constantinople, he "procured and shipped for Dr. Davis the first of these goats that were ever brought to this country." Just how much Mr. Porter was acting upon the courtesy of the Sultan it is difficult to ascertain.

Of the nine Angoras imported by Dr. Davis, seven were does and two were bucks. Besides these, according to Colonel Peters, there came in the same lot one purebred Tibet doe, several head of crosses between the Angora and Tibet goats, and quite a number of grade does bred from the common short-haired ewes of the country and his Angora bucks. Plate I shows a pair of the Angoras imported by Dr.

Davis. The first is a buck, weighing 155 pounds and carrying a fleece of 7 pounds; the second is a doe, weighing 102 pounds, carrying a fleece of 4½ pounds. These pictures appeared in the Country Gentleman in 1856 and were furnished that paper by Col. Richard Peters, who was at that time the owner of the goats. Dr. Davis, not being familiar with goats, thought these were the famous Cashmere goats which furnished the fiber for the costly Cashmere shawl, and they were called Cashmere goats for many years after their introduction into the United States. The records show that as late as 1861 Mr. William M. Landrum, the veteran breeder of Angoras, was awarded a silver goblet and $25 in cash for the introduction of the first Cashmeres [Angoras] into California. Hon. Israel S. Diehl, writing on "The Goat" in the Annual Report of this Department for 1863, gives descriptions of different varieties of Angoras in Asia Minor, among which was one variety which might very easily be mistaken for the Cashmere. He says:

> There is also a second or other variety of Angora, or shawl, goat besides those generally described. This goat has an unchanging outer cover of long, coarse hair, between the roots of which comes in winter an undercoat of downy wool that is naturally thrown off in spring or is carefully combed out for use. A remarkably fine species of this breed exists throughout the area to which the white-haired goat is limited, and similar breeds prevail all over the highlands of Turkish and Persian Armenia, Koordistan, and at Kirman; and, although some flocks yield finer fleeces than others, it is called the same wool or under down as the wool of Cashmere and Tibet, and samples of the wool of the Tibetan and the double-wooled goat of the banks of the Euxine show them to be but varieties of the same species.
>
> This goat is of a larger size than those of the more southern Turkish provinces and its wool finer, and is the variety probably introduced by Dr. Davis from Asia Minor as the Cashmere, and now erroneously so called throughout the country, as all the importations of this country, as far as we can learn, were shipped from ports on the Mediterranean or Constantinople, several thousand miles from Cashmere or Tibet, through inhospitable and almost untraveled countries for Europeans, which goes far to prove the so-called "Cashmere goat" to be the Angora.

Mr. Diehl, in the same article mentioned above, describes the Cashmere goat. The difference between it and the Angora of our country will be seen to be distinct. The similarity of the variety of Angora described above and the Cashmere is marked, especially in respect of the downy undercoat. His description of the Cashmere is as follows:

> This variety of the wool-bearing or shawl goat, as it is often called, is spread over Tibet, Northern India, and the regions to the east of the Caspian Sea. It is somewhat smaller than the common and Angora goat. It has straight, round, pointed horns, pendent ears; is covered with straight and falling long, fine, flat, silky hair, with an undercoat in winter of a delicate greenish wool, of but 2 to 3 ounces each, which latter alone constitutes the fabric from which the celebrated shawls are made. Ten goats furnish only enough for a shawl 1½ yards square; but this is often found differing both in color and the quality of the wool, or rather the fine hair, of which the fleece is composed. The principal points in the most approved breeds are large ears, the limbs slender and cleanly formed, the horns not spirally twisted, and, above all, the fleece being long, straight, fleecy, and white.

This soft undercoat of the Cashmere is known as "pashum," and is the product from which the famous Cashmere shawl was made. Mr. William M. Landrum, who was probably the first in this country to discover that our so-called Cashmere goat was the Angora instead, through investigations made about 1861, also states that there is a difference between the Cashmere shawl and the Paisley shawl. These are often referred to as being the same shawl. While the filling of both shawls was of pashum, the chain of the latter was made from the kid fleece of the Angora. Pashum is combed out in the spring, and is worth, when cleaned, in the country where it is produced, from $1.50 to $2 per pound. A writer in the Penny Magazine (London) in 1838 says:

> The wool is first combed from the animal in the mountains of Tibet, where it is sold for nearly 5 shillings a pound. It is packed in baskets and sent to Cashmere, where it pays a duty on entry. It is there bleached with rice flour, spun into threads, and taken to the bazaar, where another tax is paid upon it. The thread is then dyed, the shawl is woven, and the border sewed on.

So much for the Cashmere goat.

The first (or Davis) importation of Angoras was frequently exhibited at fairs, and always attracted much attention. The reports made by the officials of fair associations were always favorable, sometimes flattering, and as is known, after years of experience, not always correct. The United States Agricultural Society, which held an exhibition in Philadelphia in 1856, awarded to Col. Richard Peters, who was then the owner of the Davis goats, $100 as a special reward. The following report was made upon the animals:

> They have become known as Cashmere goats from the pure white color and fineness of their fleeces, and their undoubted Eastern origin. The fleeces from the bucks weigh from 6 to 7 pounds, those from the ewes from 3 to 4 pounds. The flesh of the crosses is superior to most mutton, tender and delicious, making them a desirable acquisition to our food-producing animals.
>
> The ease with which they are kept, living as they do on weeds, briers, browse, and other coarse herbage, fits them for many portions of our country where sheep can not be sustained to advantage, while their ability and disposition to defend themselves against dogs evidence a value peculiar to this race. They are free from all diseases to which sheep are liable, hardy and prolific, and experience has proven that they readily adapt themselves to all portions of the United States. The bucks breed readily with the common goats, the second cross yielding a fleece of practical utility, whilst the fourth is but little inferior to that of the pure breed.
>
> A flock of valuable wool-bearing goats can be raised in a few years by using grade bucks.

The following extract is from a report of the special committee appointed by the American Institute at its exhibition in New York City in 1855:

> They have examined with much interest the fleece submitted to them, and as well from their own observations as from the results of a microscopic examination made

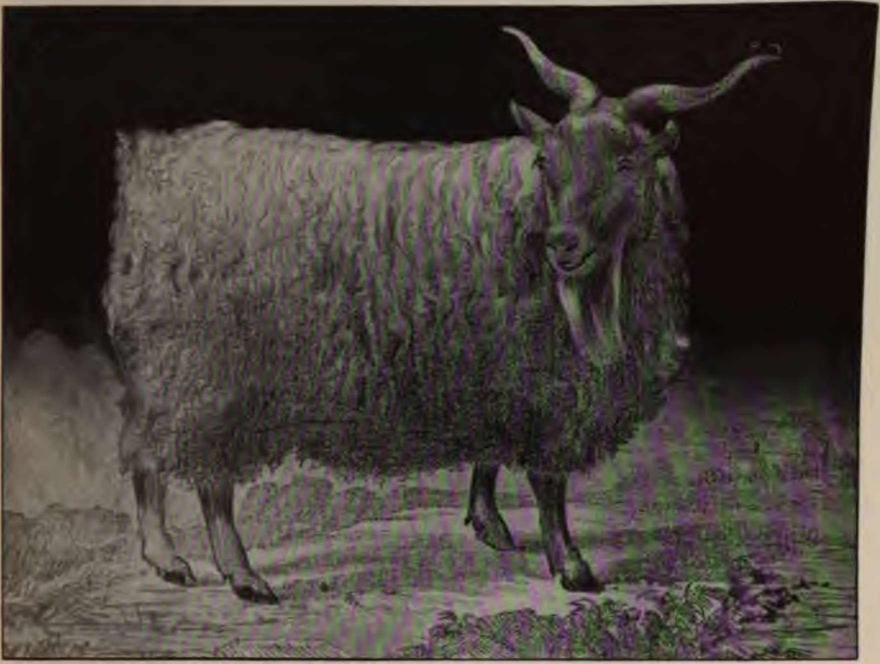

FIG. 1.—ANGORA BUCK. (DAVIS IMPORTATION, 1849.)

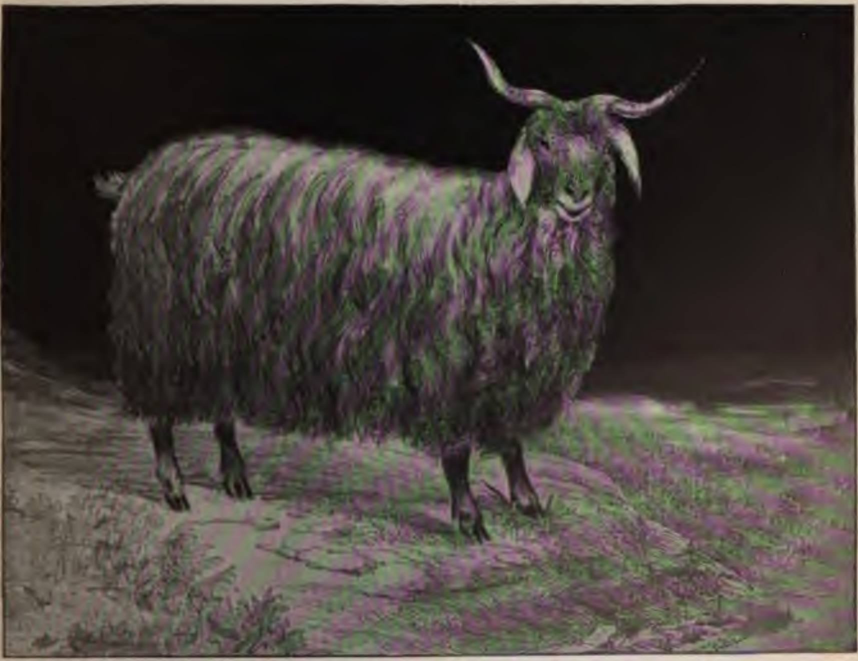

FIG. 2.—ANGORA DOE. (DAVIS IMPORTATION, 1849.)

and certified to by several gentlemen of scientific eminence well known to them, they are convinced that the fiber of these fleeces is identical in character, and fully equal in value, to that from which the highly prized Cashmere shawls were made. The fleeces on exhibition, and now under examination, amount to from 4 to 8 pounds each.

The enterprise exhibited by the introduction of these animals into this country and their propagation can not be too highly regarded.

First. These animals are long lived, such being the case with the whole goat race.

Second. They are prolific, breeding at the age of 1 year, with a period of gestation of about five months, and yielding twins almost universally after the first birth.

Third. They are hardy, experience having shown that they will thrive well in our climate from Georgia to New England, and that they require coarse and cheap food—as the inferior grasses, briers, bushes, etc.—such as is refused by other grazing animals.

Fourth. They produce a fleece of from 4 to 8 pounds, valued at from $6 to $8 per pound in France, or Paisley, Scotland, for the manufacture of those high-priced shawls. These fleeces can be produced, when the animals become numerous, at a less cost than the common sheep's wool and far superior to it.

Another fact of great practical value to our agricultural interests is the facility with which the Cashmere goats breed with the common goats of our country.

From these and other considerations, of the correctness of which your committee have entire confidence, it will be obvious that every encouragement should be shown this new enterprise—a bold and judicious movement.

B. P. Johnson.
Charles J. Goodrich.
James J. Mapes.

A committee for the New York State fair, held in New York City in 1854, reported as follows:

The undersigned can not avoid the conclusion that in the goats imported, and whose descendants have been the subjects of this examination, we have the first-known specimens of that valuable race of animals from whose hairy fleece the celebrated shawls are manufactured known in commerce by the inappropriate name of "red camel's hair." As the fleece does not appear to have deteriorated in the comparatively warm climate of South Carolina, the distinctive character of the race is hard to be obliterated, while in the northern region of the United States this character can not well fail to be permanent. Viewed in this light, the introduction of this animal promises to be of more value to the agriculture of the United States than that of almost any other animal.

James Renwick.
Joseph R. Chilton.
W. H. Ellet.

Many other similar reports were made by committees of fair associations about that time, but those quoted serve to show how favorably goats were regarded. It should be stated here, however, that there are in these reports many erroneous statements. For instance, the goat is not the Cashmere; they drop twins occasionally only, and their fleece never did bring as high as $6 to $8 a pound.

All of the Davis importation of purebred Angoras were purchased in 1853 by Col. Richard Peters, of Atlanta, Ga., with the exception of one owned by Col. Wade Hampton, of South Carolina; one sold by Dr. Davis to Mr. Davenport, of Virginia, and one to Mr. Osborne, of New York. Colonel Peters later imported others from Asia Minor, which did not prove to be very satisfactory, as they were gummy. The Savannah Republican in April, 1860, said that Colonel Peters was selling his goats at very high prices, having received $1,500 for one buck; that the president of an Illinois fair was so pleased with one of the bucks on exhibiton there that he offered Colonel Peters "the weight of the buck in silver for it." Colonel Peters is looked upon as the real founder of the Angora goat industry in the country. Although Dr. Davis had crossed the Angoras with common goats to some extent, it was Colonel Peters who demonstrated the possibility of erecting an excellent fleece-bearing flock by judicious crossing with common goats. Other importers were Hon. W. H. Stiles (1860), 8 head; Diehl & Brown (1869), of Ohio, of 135 head; Price Maurice,[1] of Australia (1870, 1871, 1872, 1873), who imported 16 bucks and 168 does for his sons, who were settled at Fort Clark, Tex.; John S. Harris (1876), then of California, now of Oakley, Idaho; C. W. Chenery (1867), of Massachusetts. A. Eutychides (1869?), a native of the province of Angora, brought over a flock numbering 175 and made a vigorous effort to bring them more largely to the notice of the American public. After several years of doubtful success he returned to the Old World to engage in farming in Thessaly.

John S. Harris says that, with the exception of Hon. Israel S. Diehl, he is the only man who ever went into the province of Angora for the mohair goat; other goats that were imported came through agents.

These are about all of the earlier importations from Asia Minor. Of recent years some excellent individuals have been brought from Cape Colony. Turkey has since 1881 prohibited the exportation of Angoras, and Cape Colony, observing with jealous eye the rapid progress now being made in the United States, has placed an export duty upon Angoras of £100 ($486.65). W. Hammond Tooke, writing of the mohair industry of Cape Colony in the Agricultural Journal of the Cape of Good Hope, says they have nothing to fear from Turkey or Australia, but that the United States gives them more concern, as the breeding of Angoras for mohair is no longer considered an experiment in the United States.

Previous to the outbreak of the civil war there were many fair-sized flocks in the South and Southwest. There were smaller flocks in many of the Northern and Western States. Mr. Diehl, in 1863, mentions flocks containing from 300 to 1,200 and more in Atlanta, Ga.; Gallatin and Nashville, Tenn.; Russellville, Frankfort, Paris, and

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[1] This statement is made upon the authority of Gustav A. Hoerle; but C. P. Bailey says he has never been able to verify the presence of this importation in Texas, and I am informed that Col. W. L. Black, of Texas, also fails to locate them.—G. F. T.

Georgetown, Ky.; Greenville, Lebanon, Montgomery, and Bucyrus, Ohio; Green County, Ind.; Chicago, Decatur, and Evanston, Ill.; St. Louis, Maramee, and Fayette, Mo.; Baltimore, Md.; Leavenworth, Kans.; Brownsville, Pittsburg, Washington, and Philadelphia, Pa.; New York City, N.Y.; Boston and Belmont, Mass.; Austin, Tex.; and in the States of Iowa, Michigan, Minnesota, California, and in other localities. So it will be observed that they were so distributed as to test in a most excellent manner the several phases of our climate upon them. On account of the civil war, however, little or no progress was made in the South, where the largest herds were located and where most interest was manifested, until about 1866. Soon after the close of the war they spread out into the West, principally into Texas and California, where the natural conditions were most favorable, and where they have, quite unknown to the public, increased wonderfully in numbers and, in the light of recent events, in importance also.

In the spring of 1861 Colonel Peters sold two 16-months-old bucks to William M. Landrum, of San Joaquin County, Cal. They were sent from Atlanta to St. Louis by express; thence by steamer to Fort Leavenworth, and thence on foot to California with a wagon train. They subsisted on the journey by browsing on what other animals rejected, and arrived at their destination uninjured and in good condition. Mr. Landrum exhibited them at the State fair the same year, being awarded a silver goblet and $25 in cash. One of the goats, after siring about thirty kids, died of snake bite; the other one, famous on the Pacific coast under the name of "Billy Atlanta," lived to be 10 years old, and then was accidentally killed. He had sired about two thousand kids. This buck won the sweepstakes prize over all competitors at every State fair down to his death; and Colonel Peters stated in 1876 that his numerous descendants were scattered all along the Pacific coast, and that "his blood courses in the veins of over one-half the Angora flocks in that part of the Union, estimated to approximate 70,000." Colonel Peters further stated "that about one-third of the purebreds introduced into California were contributed from the first and original (Davis) importation of 1849, and that their blood is present in probably two-thirds or three-fourths of the Angora stock on the Pacific coast."

Mr. Landrum was in California from 1850 to 1883, after which time he went to Texas. He is now at Laguna, Uvalde County, Tex., and, with his sons, is still interested in the Angora goat industry. The Chenery importation was shipped by the British consul in Angora to Constantinople, where they were sorted by Mr. John R. Thompson and the American consul, and shipped by a sailing vessel to Boston.

Ten head of the Chenery importation were taken to California and disposed of as follows: A pair to C. P. Bailey, San Jose, at $500 each; a pair to Thomas Butterfield & Son, Watsonville; a pair to William M. Landrum, San Joaquin County; a pair to Mr. Pierson, Santa Cruz; and a pair to Flint & Sargent, Monterey County. This lot was the beginning of the breeding of thoroughbred Angoras in California. Prior to this but two Angora bucks had been taken into the State—the two which were sent by Peters to Landrum.

The Diehl and Brown importation was first taken to Ohio; and afterwards the entire lot, it is believed, was taken to California, where the goats were widely disseminated through the State, some of them bringing as much as $200 a head.

In 1875 William Hall bought of Butterfield & Son their entire flock of 150 goats for about $17,000. The same year John S. Harris joined Hall as a partner, and the following year went to Turkey and purchased ten does and two bucks. These also went to California. It is said that the blood of this importation was felt beneficially in every good flock in the State.

In 1893 C. P. Bailey imported from South Africa two bucks. Pasha (see Pl. VII) was one of these, and his get has been sent to nearly every State in the Union. In 1899 Mr. Bailey imported another buck from Cape Town. This animal is the last importation into the United States.

The statement has already been made that the first goats taken to California were purchased of Colonel Peters by Mr. Landrum. In 1872 Mr. Landrum purchased all the goats under 8 years of age which Colonel Peters then owned and took them to California.

Mr. Julius Weyand, secretary of the Angora Goat Breeders' Association of California, in a report to that organization in 1891, gives a brief review of the industry in that State. He says that in 1885 there were about 100,000 Angora goats in California, but between that date and 1889, owing to the admission into the United States of mohair as carpet wool, and thus paying but 2½ cents duty per pound, the number decreased to 55,000. Mr. C. P. Bailey is authority for the statement that practically all the goats in California are of the Angora breed.

Large flocks of Angoras have been sent from California and Texas into Nevada, Oregon, and Washington, where they have been divided into smaller flocks and become the property of many different farmers. Texas has also sent many over into New Mexico.

Although the foregoing facts show that the Angora goats have been slow in gaining a standing among the industries of the country, it can hardly be doubted that there are now in motion such energies as will place the industry upon a rational basis. It is believed that the Angora industry is already emerging from the chaos which has enveloped it for fifty years past, and that it will soon be as firmly established as any other stock interest in the United States. A recent issue of Wool Markets and Sheep says:

> After careful review of the situation, past and present, the Angora goat industry of this country we clearly conceive is destined to be one of very great importance in our agricultural economy. Our broad acres and diversified geological and climatic conditions give ample scope and abundant suitable conditions for the carrying on of the business to a large extent and profitable issue.

DESCRIPTION OF THE ANGORA GOAT.

Mr. Israel S. Diehl, bearing a commission from the Commissioner of Agriculture, visited the province of Angora in 1867 to investigate the mohair industry. Here, where there were once in operation 1,700 to 1,800 looms working up the mohair fleeces, he found but a few hundred remaining, struggling hopelessly against the fatal competition of European machinery and the aggressive policy of the European Governments. The fleeces were exported to Europe for fabrication, thus rendering Turkey tributary to the monopoly then existing in this industry in Europe. The European demand for the raw material was so great and the facilities to fabricate it so much better and cheaper that Turkey was compelled to export the raw mohair. In order to meet the demands for manufactured mohair the Turkish growers, without wise foresight, began the practice of crossing the Angora upon the common Kurd goat of that country. The inevitable result of such a policy was to bring about to a large extent the conditions which have obtained in the United States, namely, a breed of Angoras of uncertain purity. This fact, coupled with the belief that proper care was not exercised in selecting the animals exported to this country and that they have been carelessly bred here, has led some excellent judges of Angoras to express the belief that there are really no purebred Angoras in the United States.

These conditions have produced various types of Angoras, even in Asia Minor, and a minute description of one would not apply to all. Some strains have fox-like ears, while others and generally preferred ones have long pendent ears. In this country care must always be exercised to cull the offcolored kids out of the flock. These may be the result of atavism, where a cross was made upon a common goat either red or black; but it is reported by some that different colors are found in the province of Angora among what were supposed to be purebred animals. Mr. Gustav A. Hoerle, one time corresponding secretary of the American Mohair Growers' Association, and an authority of note on Angora goats, mentions having yellow and red goats in his own herd, and said that "some of the kids became quite a variety show."

Mr. S. C. Cronwright Schreiner, of Cape Colony, in his excellent work on "The Angora Goat," has compiled the descriptions of almost all writers on Angora goats. He quotes Mr. Henry O. Binns, who spent twenty years in the mohair districts of Asia Minor between 1864 and 1886, and who studied them during that time, as follows:

> The pure Angora in his prime is about the size of a five-months-old Cape [Cape of Good Hope] kid, with small thin horns, wooled all over the body, their hair almost covering the eyes; exceedingly delicate, and so subject to disease that no one cared to keep him. What is to-day called the purebred Angora is like the English thoroughbred horse—the result of crossing and recrossing until body, class, points, etc., have attained to what is generally considered that the thoroughbred Angora ought to be.

Mr. Schreiner's opinion of what a purebred Angora is, given on page 58 of his book, is as follows:

> I think it is certain that the original purebred white mohair goat was a small, very refined, delicate animal, of great beauty, clipping at twelve-months' growth of fleece about from 2 to 4 pounds (according to age and sex—kids considerably less) of dazzling white, fine, soft, silky, very lustrous mohair, curling in ringlets from 10 to 18 inches long, with merely the minimum of oil in its fleece requisite to the growth of hair of the highest excellence, so small in amount as to be inappreciable to the unskilled observer. It was perfectly clothed in every part; it had short, silky, curly hair about the face and down the lower parts of the legs to the hoofs; a soft, silky, curly "kuif" (tuft on the forehead), and small, thin, light-colored horns. The ewe was of course smaller and finer than the ram, and had only one kid at a birth (of this there is abundant evidence).

Although Mr. Schreiner thinks the Davis importation to this country was among the best bred goats that ever left Turkey, it will be noticed from the pictures of two of them shown herein (see Pl. I, p. 16), which were said by Colonel Peters to be excellent, that the mohair does not extend "down the lower parts of the legs to the hoofs." It is doubtful if any such Angoras may be found existing at this time, however probable they might have been in their original purity.

The following is quoted from Dr. John Bachman,[1] of Charleston, S. C., who was appointed by the Southern Central Agricultural Association of Georgia to report on the Angoras belonging to Colonel Peters, of Atlanta:

> The Angora goat, more especially the varieties it has produced, is described by Hasselquist (1722–1752), Buffon (1707–1788), Pennant (1726–1798), and others as in general of a beautiful milk-white color, with short legs, and black, spreading, spirally twisted horns. The hair on the whole body is disposed in long pendent spiral ringlets; its ears are pendulous, and the horns of the female, instead of divaricating as in the male, turn backward, and are much shorter in proportion.

Mr. Diehl[2] (1863), adopting to some extent the same language as Dr. Bachman used, describes the Angora as follows:

> The Angora goat, and more especially the varieties it has produced, are probably the most valuable of all the goat family, and have been ably described by Naturalists Buffon, Pennant, Hasselquist, and travelers as good-sized animals, generally of a beautiful milk-white color, with short legs and wide-spreading, spirally-twisted horns. The wool is described as a very beautiful curled or wavy hair of silvery whiteness, with a fine downy wool at its base, and this hair is disposed in long, pendent, spiral ringlets on the whole body. The horns of the female, instead of spreading, as in the male, turn backward, and are much shorter in proportion. Those of the male are long, spirally twisted, but the size and direction are very different from the common goat, being generally extended from 15 to 30 inches in height on each side of the head, while those of the female are near the ears. The hair, or wool, often sweeps to the ground, and is usually from 5 to 12 inches long, especially in the older bucks, but then not so fine.

This brief description, he said, applied to all the Angoras which he saw in western Asia, Europe, and in this country, which amounted to several thousands, except as to a difference in ears, for, while some had pendent ears, others which he examined had ears exceedingly small and short.

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[1] "Report on Asiatic Goats," United States Agricultural Report, 1857, p. 58.

[2] "The Goat," United States Agricultural Report, 1863, p. 222.

Mr. Diehl also mentions a variety of this goat in Angora which was hornless. There is reason to believe that an intelligent system of breeding would produce such result. Such an end has been attained with cattle and is entirely feasible with goats.

In this connection, interest will be manifested in a note from Col. William L. Black, of Fort McKavett, Tex., who says he has an interest in a flock of hornless Angoras in Iowa. He says that there is no doubt that it is a "distinct breed." His experiment the first season was seven hornless kids from eight does with horns, and the second season (1900) he raised "fully 90 per cent of hornless kids." Hornless Angoras, however, were not very rare in Asia Minor, and it may be that there were some in the vilayet of Angora. They were called Kastamoonee[1] Angoras, taking the name from the vilayet of that name. The vilayet joins that of Angora on the north and forms a part of the northern boundary of Asia Minor. Several years ago Mr. William M. Landrum imported one of these Angoras. He was known as "Hornless Johnnie." Mr. Landrum was not very proud of this animal, as would appear by this from his pen in 1899:

> He sheared 10 pounds at six months, but his hair was too coarse for anything but wigs. I bred him to a lot of purebred Angora ewes and got the best lot of bucks for low-grade ewes that I ever saw; got $50 premium for them over purebred Angoras. I paid $2,000 for him, and lost him the second year. If he had lived I would have injured my purebred flock with him. As it was, I killed for mutton several ewes got by him from purebred ewes to get them out of the flock. I could not certify them to be pure Angoras.

It is to be hoped that Colonel Black's efforts to originate a hornless variety will produce better results than were obtained from Hornless Johnnie. Of course, the presence or absence of horns need not necessarily have any influence upon the qualities of a goat.

Probably the best description of the American Angora is that given by Mr. Gustav A. Hoerle, which is given below. Reference is to first-class animals, and not to grades of various degrees:

> The body should be long, and the rounder the better; the back straight, with shoulders and hips equally high from the ground; shoulders and quarters heavy and fleshy; chest broad, indicating good constitution; the legs should be short and strong; the head is in shape like that of a common goat, but less coarse and cleaner cut; the horns are heavy, with an inward twist, inclining backward and to the outside.
>
> Except just the face and legs, from the hocks and knees down, the entire animal should be densely covered with mohair, and neither the belly nor the throat nor even the lower part of the jaws should be bare, but should have a good covering of fine, silky mohair, and with the finest specimens the mohair tuft on the forehead should be well developed. The mohair should hang in long, curly ringlets. However, not every Angora goat which shows these perfectly curly ringlets of the mohair

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[1] This name is variously spelled—Kastamoonee (preferred by Lippincott), Kastamouni, Kastamuni, Castambool, Castambul, Costambone.

must necessarily be considered a thoroughbred; whilst, on the other hand, there are quite a number of really handsome and valuable thoroughbreds whose hair has not that much-desired shape, owing entirely to climatic and nutrimental influences, as well as to advancing age. Thoroughbreds and all nonshedding grades can easily be recognized by the peculiar shape of "points" of their mohair, each end showing plainly that it has been "cut off," instead of running gradually to what is called a "steeple point," which is found with the hair of all kids and of shedding grade Angoras. The plainer and longer this blunt point shows toward the end of the year the better is the fiber of the mohair, and the more valuable is the hair for combing purposes and the smaller the percentage of noilage and waste. After shedding, as well as nonshedders after shearing, the mohair grows very rapidly for some months. It grows slower toward the end of the year, and, with very bad climatic and nutrimental influences, almost stops growing entirely. Therefore, if the late fall shearing is practiced, Angoras need good care during winter. The more even in length and quality the mohair is on all parts of an Angora body the better. When in full fleece the body of a fine thoroughbred Angora should appear like a right-angled square, with no gaps or deficiencies of covering, especially below the belly.

Mr. Hoerle is encountering some opposition to his ideas of the nonshedding varieties. Because of this difference of opinion the Bureau submitted the question, "Do thoroughbreds (fourth cross or above) shed if not sheared?" to a large number of the breeders of the country. A summary of the replies received is given elsewhere (see p. 79).

A characteristic of the common goat that is very objectionable is the ever-present offensive odor from the bucks; in the Angora breed this odor is entirely absent, except at the rutting season, and then it is noted in a slight degree only. The odor in a fleece of mohair is milder than that in a wool fleece, and is not at all offensive.

NAMES OF THE BREED, THE SEXES, AND THE MEAT.

NAME OF THE BREED.

There was no difficulty in dropping the name "Cashmere" as soon as it was known that the Angora goats did not belong to that breed, but there are a few uninformed persons who still refer to them as Cashmeres. Owing to the prejudice existing against "the goat," it has been suggested and strongly urged by some that the easiest and quickest manner of ingratiating the Angora goat with the people is to drop the word "goat" altogether and call them simply "Angoras." In other words, it is proposed to pretend that this animal does not belong to the goat family. It would still be a goat notwithstanding, and students of science would forever be pointing out the pretense. Besides, the use of the name "Angora" alone would almost certainly lead to the commission of errors. Everything of American origin is referred to as being "American," and the various animals from the vilayet of Angora could with equal propriety be called "Angoras." For instance, the long-haired cat from that province is quite well known in this country and is called an "Angora."

The American people desire to know things by their right names. This is a principle more deep seated than mere prejudice. A great amount of prejudice had to be overcome before the tomato was generally used for food, and we can imagine in a degree what was said of the first man who ate an oyster or a mushroom. But these "poisonous" and "nasty" things are now recognized everywhere not only as delicacies but as most nourishing food. So will it be with the flesh of Angora goats when it is generally known that it is palatable and nutritious. A perusal of the many reports received by the Bureau of Animal Industry shows that there is no objection to Angora goat meat in those localities where these goats are raised.

The Angora has everything to recommend it—nothing to condemn it; and there seems to be no real good reason why its identity should be lost by dropping the name "goat." Whoever sees the animal can not fail to admire it, and whoever eats of it is quite certain to like it if he is at all fond of mutton; and the prejudice against it will disappear as the industry expands and develops throughout the country. Indeed, a knowledge of the Angora goat shows that the existing prejudices will not hold against it; that those prejudices are based upon the reputation of the common goat.

NAMES OF THE SEXES.

There are no well-established names for designating the sexes of goats. The male is indiscriminately called "male," "sire," "buck," "ram," and "billy," and the female, "doe," "ewe," and "nanny." Oftentimes a writer uses two or more of them in one article, showing that he has not adopted any of them. One of the questions submitted to the men was this: "As to designation of sex—do you call the male "buck," "billy," or "ram," and the female "ewe," "nanny," or "doe?" More than half of those who replied called the male "buck," and nearly half called the female "doe." The objection of one writer that the plural of the female, "does," conflicts in reading with the verb "does," will not hold, as a sentence will not "make sense" with the one word used for the other. In this bulletin it has been decided to refer to the sexes as "buck" and "doe."

The castrated animal is called "wether," as with sheep. In Cape Colony he is called a "kapater," and the sheep wether is there called a "hamel;" but there is no reason why we should adopt these terms.

The young is called the "kid." There seems to be absolute unanimity in this matter.

NAME OF THE FLESH.

Our correspondents are apart in the use of the terms "Angora mutton" and "Angora venison" for the flesh of the Angora goat, but the greater number of them call it by the former name. Those who pastured their goats upon some grass or clover as well as upon browse, and then finished their fattening with grain, produced a meat so nearly like the best lamb that it required experts to detect a difference; these people use the term "Angora mutton." In other instances, where the animal is fattened by browse alone, there is imparted to the meat a game flavor, which may be intensified or reduced by the character of the browse; people who use the meat under these conditions call it "Angora venison."

Some correspondents, with evident thoughtlessness, refer to the meat as "goat meat." This is a serious blunder if a successful effort is to be made to popularize the use of Angora mutton, as there is a wonderful difference between the flesh of the common goat and that of the Angora. For this reason the prefix "Angora" should never be omitted.

THE USES OF ANGORA GOATS.

A large class of people in some way have become possessed of the opinion that the goat is practically a useless animal. They do not reach conclusions upon investigations, however, and do not discriminate between the different breeds. To them a goat is a "goat," and there the argument ends. Investigations prove that the Angora goats are not only classed among the most useful of the domestic animals, and have been so classed for thousands of years, but their usefulness is manifested in a variety of ways. The fleece, called "mohair," furnishes some of the finest of fabrics among ladies' goods and is used in various other manufactures; their habit of browsing enables the farmer in a wooded locality to use them to help in subjugating the forest; their flesh is exceedingly delicate and nutritious; the milk, though not so abundant as with the milch breed of goats, is richer than cow's milk; their tanned skins, though inferior in quality to the skins of the common goat, are used for leather; their pelts make the neatest of rugs and robes; they are excellent pets for children; a few of them in a flock of sheep are a protection from wolves and dogs; their manure is noticeably helpful to the grass which follows them after they have cleaned away the underbrush. These are all vital subjects of varying degrees of importance, and will be considered here under appropriate heads.

BROWSING AND PASTURAGE.

Ability to clear brush land.—Goats are browsers by nature, and there is no vegetation they will eat in preference to leaves and twigs of bushes. While this fact would at once establish them as an intolerable nuisance in an orchard or garden or any other place where desirable shrubbery is growing, it also shows that they may be of great value in many localities where it is desirable that underbrush be destroyed. They are omnivorous eaters and seem particular to avoid that character of vegetation which other kinds of live stock prefer. Every leaf and every twig within their reach is greedily eaten, even to most of the bushes and weeds that are considered poisonous to other ruminants, while a remarkably few weeds are passed by. They will desert the finest clover and blue grass for such an outlay.

The inherent tendency to climb leads them to hillsides and rocky cliffs, and they prefer such situations to any of a level character. Here nature meets their necessities by dwarfing the bushes so they may be browsed easily; the soil is quickly drained in the event of rain—for they do not like wet land; and the stones serve to keep the feet trimmed properly by the wearing process. This is the situation that the goats would choose; but the farmer might choose to turn them into a dense mass of brush and weeds anywhere and they will at once begin to convert it into the most beautiful pasture.

In those localities where valuable land is completely subdued by brush the goats are considered of more value for the purpose of clearing it than for their mohair or meat. They thus become one of the farmer's important tools. Their value in this respect must be measured by the value of the land which they will render cultivable. It is said that in Oregon, where Chinamen had been paid as high as $20 an acre for clearing off brush, goats had done the work even better. Sprouts will spring up behind men's work, but goats will keep them down until they cease to appear. True, the goats require more time than men, but their work is better. In this connection an article which appeared in the Country Gentleman of January 11, 1900, is of special interest:

> In 1870 Mr. Landrum exhibited ten head at the Oregon State fair. They were put in a brush pen, where they ate out the brush and peeled the saplings during the fair. As the Willamette Valley was covered with brush and farmers were paying Chinamen $20 and Americans $22 per acre for grubbing, Mr. Landrum suggested the employment of goats instead; and, to demonstrate their effectiveness as substitutes for grubbing, he left them on 3 acres of slashed brush. At the end of the first year the roots were dead and discolored, and at the end of the second year they were rotten and the land mellow for the plow. Then he drove up his California herd of 2,400, the result of fifteen years of breeding, and sold them in small lots from Jacksonville to Portland, scattering them throughout the Willamette Valley. He says he sold as many more later to go to Oregon, where there are now 80,000 head, mostly in lots of 25 to 300. * * * He believes that they are more profitable than any other farm animals. They have cleared hundreds of thousands of acres of brush land in Oregon now in cultivation.

Through the courtesy of Dr. J. R. Standley, of Platteville, Iowa, three illustrations are presented which, as he naively states, shows woodland "before goating, during goating, and after goating." Words can not possibly emphasize the work of goats as brush destroyers so strongly as these illustrations. The first (Pl. II) shows simply a dense mass of hazel, plum, crab apple, several varieties of oaks, and weeds as high as the fence. This land was as nearly like that shown in the other illustrations before goats were turned in them as it was possible to find. The second (Pl. III) shows a piece of land while goats were operating on it. It will be observed that the brush is dead, and that the weeds only appear to be alive. The third (Pl. IV) shows the "finished product" after two years. The goats had been in the tract shown in Plate III but twelve months when this photograph was taken. The shrubbery that was too large for the goats to "ride down" was cut down, the goats completing the work by eating the soft twigs and leaves. The last piece is ready for cultivation or for pasture for cattle, sheep, or horses. When the goats were first turned into this tract it was as full of brush as the tract shown in Plate II, and they were allowed to run upon it but two years.

The beneficial effect of the goats is not all in the clearing of the land of brush. In many parts of the country nutritious grasses "come in" after the goats have done their work. In the tract shown (Pl. IV) blue grass has by natural methods formed a most excellent pasture. The final result is that the goats not only put such character of land in condition for cultivation, but actually go further by converting a wilderness into a good pasture, thus preparing the way by cheapest methods for sheep, cattle, or horses.

Dr. Standley says that in that part of Iowa where he lives "100 Angoras to each 40 acres of this land for two years would make it as clean as a lawn and as perfectly set in blue grass as a lawn." He has 500 acres of such land cleared in this manner. This land now supports one steer to each acre, whereas before it was cleared there was not enough grass on an acre to make a sheep or goat a single feed. The same experience is reported by Mr. Q. M. Beck, of Beargrove, Iowa, who says: "After running them on such lands here a few years we have a fine blue-grass pasture."

Dr. Standley's experience in the employment of goats for clearing land is extensive, and thousands of goats have been taken into Iowa upon his recommendation. It will interest the readers of this paper to see the following from his pen:

> Land can be cleared of the worst brush known to this country for a little less than nothing by Angora goats. Some one asks how. Simply this: Angora goats will pay a profit and live on leaves and weeds, leaving the land cleaner and nicer than can be done in any other way. Many persons have the idea that goats bark the trees and in that way kill them. They also think that goats wholly eat the hazel and other small brush. There is nothing in this. Goats are no worse to bark trees of any kind than sheep. The way in which goats kill brush is by continually cropping the leaves, which serve as the lungs of the brush. The continued cropping of the leaves makes the brush, as it were, sick, caused by lack of nourishment. This sickness sinks to the very extremity of the roots, thus preventing sprouting. Any and all kinds of bushes are in this way easily killed. Some kinds of brush and some kinds of stumps are of course much harder to kill than others. Many varieties are entirely killed by one summer's trimming of the leaves. Almost any are killed by two years'

trimming. To clear the worst brush do not cut anything that the goats can reach or bend. The tallest or largest is better not cut. All trees and saplings should be cut, and the goats will keep all the sprouts down. If stumps are allowed to sprout one year before the goats are turned in, the sprouts need not be cut. About 200 goats for 40 acres of brush will in two or three years make the land as clean as a garden. If the pasture has only patches of brush, turn in a few goats and it will make more grass for other stock than if the goats were not in. They eat very little grass when they can get leaves. Goats even like weeds better than grass. In clearing brush land in the old way by grub and plow there are always left many eyesores in the way of brushy nooks and bends and steep places which can not be plowed.

There are millions of acres of land in nearly every State in the Union which might be much more than doubled in value by the use of Angora goats at no cost at all. Commence and count the worth of your land, then the fencing, and see if you can afford to leave your brush land so nearly worthless for all time. Then count the cost of grubbing and plowing, if indeed such land is susceptible to the plow. No man can afford to grub and plow brush land in this day and age of the world any more than he can afford to plant a large field of corn without a planter. In hilly or mountainous portions of the country the Angora goat can be made to do a great service in the way of clearing the underbrush, when the land will bring grass after the brush is gone. It would surely be a paying business to buy up large tracts of rough land in the mountain districts, or indeed any brush land in the United States, and clear the brush and set in grass. Afterwards, if the owner liked other stock better, he might dispense with the Angoras. In many places where the country is too bare to furnish sheep with sufficient feed goats will do exceedingly well. In many places where leaves are abundant and there is scarcely any grass, making it impossible to profitably keep sheep, goats will do admirably well.

While Dr. Standley's experience is that goats will not to any appreciable extent peel the bark off shrubbery, the experience of others is quite the reverse. Mr. H. T. Fuchs, of Tiger Mills, Tex., writes in the Farm and Ranch of October 6, 1900, that one summer he purchased some Angora goats which came from a range where they had killed out all the tall sumac trees. On his own range was much of this brush, and his goats had never touched it. It was a treat for the newly purchased goats, and they "peeled the bark nicely and cleaned off every sumac tree in the pasture as high as they could reach (about 6 feet), and in a few days you could see the white, smooth-peeled trees with their dead tops for miles all over the pasture." He adds that fifty men with hatchets could not have done the work so fast or with so much pleasure. Further, he says the goats that had all along been in the pasture "took the hint and went at the bark peeling also." All of which goes to show that the goat is an intelligent animal and is capable of learning much by observation.

Mr. Q. M. Beck, of Bear Grove, Iowa, writes that he had goats on a 23-acre tract, fenced, in one corner of which were 5 acres of clover suitable for hay. The goats not only cleared the way for the clover, but ate the browse instead of the clover. The goats were turned into this piece last June (1900), when they could hardly be seen on account of the brush, while now (September) they can be seen anywhere in it.

Of no less interest is the following extract from an article by Col. William L. Black, of Fort McKavett, Tex., who writes from an experience of many years:

> The brush question is a most serious one in a great many of our States. So long as land can be kept under cultivation the brush can be kept down; but when it is once thrown open to pasture briers and brush of all descriptions begin to grow and soon cover the entire surface. Even in our own State of Texas many millions of acres are growing up into brush thickets and will sooner or later become worthless for pasturing cattle, and in many of the Western Territories the same conditions exist. It is supposed that this has been produced by an increase in the rainfall, but I am inclined to think it is not altogether due to this fact. That brush and trees are indigenous to many of our so-called arid districts can be very easily proven by the great quantities of roots that the present inhabitants dig out of the ground for fuel purposes. Not a tree can be seen for hundreds of miles, yet these great roots can be found almost everywhere on the prairies and are a substantial witness to the fact that there was an abundance of trees there at some time or other. Before this portion of the United States was occupied by the white man it was a common practice of the Indians to burn the high prairie grass every fall or winter in order to hunt wild game that was so abundant in this part of the country. Buffalo and deer were as common then as cattle and sheep are now, but the grass was so high in places they could not be seen, and the Indian would burn it off to be able to hunt them more readily. This undoubtedly destroyed much of the growth of trees and, in my opinion, is the true explanation of the roots that are now found in many parts of west Texas, New Mexico, and other Western Territories.
>
> The question is a very important one; and if the goat can be used to keep this growth back, it is certainly well worth the attention of many of our landowners, who may, in a few years, find their land practically worthless. A personal friend writes me that "many pastures are growing up to oak brush and hazel brush in the North, and in New England they are bothered with ferns (called brakes), berry bushes—blackberries, raspberries, etc." This kind of fare would be "peaches and cream" to a goat, and in a year or two the owner would be relieved of a great nuisance, the goats would grow fat, and the land would be restored to a proper condition for grazing other stock on it. Another correspondent in Massachusetts speaks of a certain small island he owned which was so densely covered with brush as to be utterly valueless except to grow mosquitoes. I hear of many parts of the East that are seriously troubled with brush, where many thousands of acres are of no use for grazing purposes, and the profit in farming will not justify the cost of grubbing it. In the Southern States many farms have become worn out and are growing up into brush and weeds. The Angora goat is the proper animal to employ to put these lands in a condition either for cultivation or grazing cattle. But a number of my correspondents have asked me what they could do with the goats after they had cleared the land. In reply to this I will say they can well afford to slaughter them and feed them to hogs, but this is not necessary now. The fashion has changed since I slaughtered goats for their hide and tallow, and there is no trouble in selling all the goats you send to any of our large meat-packing markets.

Mr. E. H. Jobson, having in mind the markets as well as the clearing of land, writes as follows:

> The best and most effective way to clear brush land with Angora goats is as follows: It will not be necessary to put up a very high fence; 4 feet of close fencing is plenty and will be sufficient to keep the goats in. The proportion of goats is two and one-half to three goats to an acre of ordinary thick brush land. I believe the cheapest way to clear your land is with yearling wethers, as will be seen later on. If wethers

are used, you must fence off one-third of the land you desire cleared, so the goats can not get to it. The proper time of the year to turn them loose on the brush is after the spring rains have ceased, whish is usually about the 1st of June. By this time the leaves will be well matured, and the goats immediately proceed to strip the brush of its foliage, which leaves the stems and branches exposed to the hot sun, which cooks them and kills the brush from its deepest roots to its topmost branches. The hot sun being the most effective, and there being no rains to revive the sap, it makes quick destruction of the brush. By the time that the goats will have the largest portion of the land cleared it will be well along in August, and it will now be time to turn them in on the piece of land fenced off at the start, which is fresh and abundant. In connection with the brush feed allow them one ear of corn a day, and at the end of six weeks they will have cleared the remainder of your brush land, and the corn you have been feeding them will have them in prime condition to be thrown on the market, where they will bring as much as, if not more than, you paid for them. The result is that you have cleared your land, at most, at an actual cost of 50 cents an acre, and besides that, your land is now ready to set in blue grass, which will enable you to rent it to sheep growers at $2.50 per acre, thereby causing the idle land to produce an income rather than a constant incumbrance of taxes, with no profit at all.

An illustration of the value of Angora goats in clearing land is given by Mr. Abe Blackburn, of North Yamhill, Oreg., who says that he now has a pasture that will keep 200 sheep which did not have grass enough to keep a goose when he turned his goats into it a few years ago. The goats have killed out the brush, and the grass has taken its place.

The following quotations from others who have had experience with goats as brush destroyers show how well the work is done, and, to some extent, the character and kinds of brush eaten:

When confined in small bushy pastures they have been profitable in clearing the land. Some of the finest vineyard lands in California have been cleared by goats. A farmer in western Oregon, who has for several years run a small flock of goats in a pasture with dairy cows, says the pasture now produces double the grass it did before he purchased the goats. Lands formerly producing nothing but brush and ferns are now covered with clover and bunch grass. A farmer in Iowa writes as follows: "Their value as brush-land cleaners can hardly be estimated. To a person who has never seen the results of the application of Angoras to brush lands, a ride through my blue-grass pastures is a revelation. Where three years ago the ground was densely covered with an undergrowth of hazel, crab tree, oak, blackberry, and other brush, it is now growing the finest blue grass. At present I have over 600 acres which have been reclaimed, and a conservative estimate would be that the value of the land had thereby been enhanced at least $10 an acre."—*C. P. Bailey, San Jose, Cal.*

Angora goats like a variety of food; they live principally on leaves and young and tender barks and twigs of bushes and small trees, but, if necessity compels them, they will also eat weeds and grasses, and for a time do well on them. The quality of a goat pasture, therefore, depends upon the amount and variety of brush, especially evergreens—as cedar, hemlock, live oak, holly, etc.—which it contains, for on these, as well as the tender bark and twigs of all kinds of bushes, they live principally in winter; and the more of it they find the less grain and hay do they require during the cold spells.—*G. A. Hoerle, Ridgewood, N. J.*

For clearing out thickets and undergrowth of all kinds there is nothing better than these goats. Their pasture will soon look as clear as a cleaned-up picnic ground as high as they can reach when standing on their hind legs. In this way they can reach 5 or 6 feet high, and they bend down everything they can reach with their fore legs. The brushier the range the better, and the more different kinds of brush and weeds on their range the better they will thrive.—*H. T. Fuchs, Tiger Mills, Tex.*

They more than pay for the expense of keeping them by clearing my land. They clear off the willows, haws, buck brush, and squawberries and leave a good bluegrass pasture where there was a nuisance in the first place.—*J. D. Lewis, Colo.*

He will eat buck brush, black oak, hickory, and all other kinds of brush, jimson weed, ironweed, smartweed, and every other weed that grows, leaving the grass for other animals that will feed after the goats.—*R. C. Johnston, Lawrence, Kans.*

There is good grass here (Wyoming), but my goats won't eat buffalo grass. They will browse on sagebrush, grease wood, scrub cedar, scrub pine, laurel, and willows; but they refuse to eat the best grass that grows.—*W. W. Eheler.*

In Arizona the principal and favorite browsing is live-oak brush.—*J. F. Holder, Ariz.*

The statement is made in a previous paragraph that goats are omnivorous eaters, apparently preferring those kinds of vegetation that other animals do not eat. The information in the quotations just given indicates that they will feed upon a great variety of plants. With the object in view of ascertaining the different kinds of plants that these goats feed upon, the Bureau requested several stock raisers in various States and Territories in the country to report answers to the question, "What kind of browse do your goats have?" Some information of this character is in the quotations above and more will be found in the replies copied below, credit for the statements being given to the State only:

All kinds of bushes, such as scrub oak, cedar, etc., in Texas. In this part of New Jersey most everything that exists in Texas, except scrub oak and live oak, may be found.—*New Jersey.*

Black oak, sumac, buck bushes, briers, and all kinds of weeds. They will not eat grass if they can get browse.—*Missouri.*

Buck bush, elders, sumac, prickly ash, briers, grapevines, jack oak, ash, sycamore, basswood, and hickory. The latter they do not seem to care much for.—*Kansas.*

Brush, weeds, and grass.—*Texas.*

In southern New Mexico they have live oak and mahagony. They do best on scrub oak.—*New Mexico.*

Oak, hazel, vine maple, ash, willow, rosebush, thimbleberry, blackberry, buck bush, service berry, crab apple, haw berry, soft maple, and some fir.—*Oregon.*

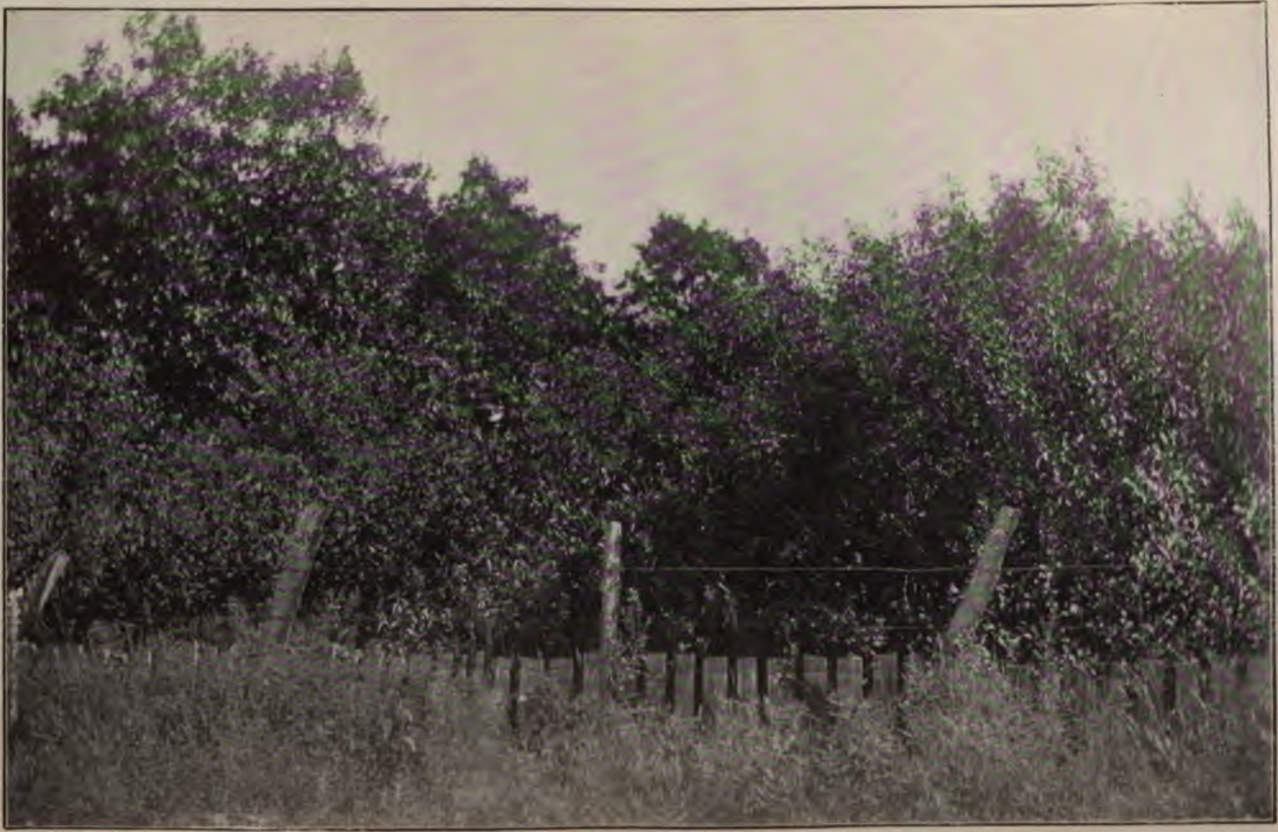
Mostly mountain oak and other classes of underbrush. They will not eat grass if brush is obtainable.—*New Mexico.*

Oak and hazel.—*Oregon.*

Maple, hazel, willow, fir, thimbleberry, cascara, vine maple, cherry, alder, and salol.—*Oregon.*

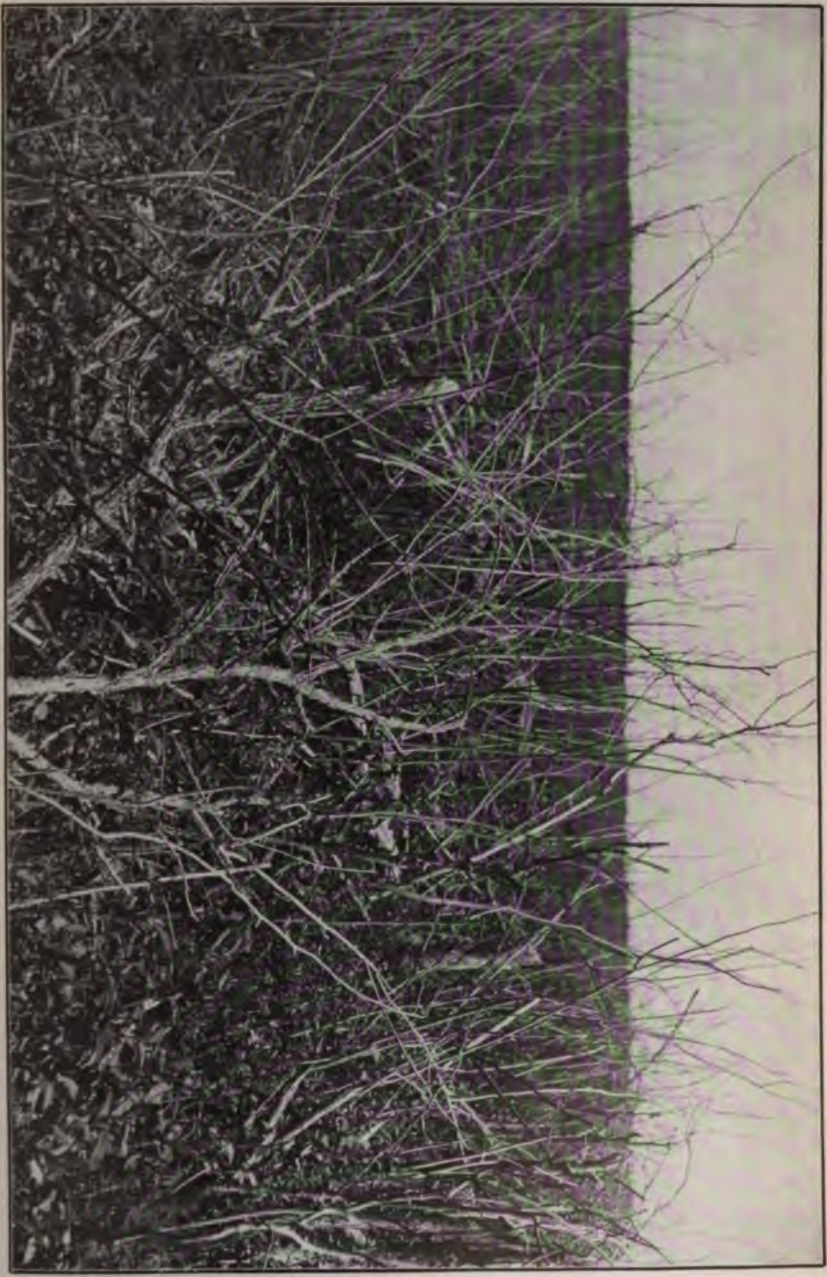
Willow, ash, and buck bush on low, swampy land in summer time, and straw and fir brush in winter months.—*Oregon.*

Apple, fir, oak, ash, willow, maple, and poplar.—*Oregon.*



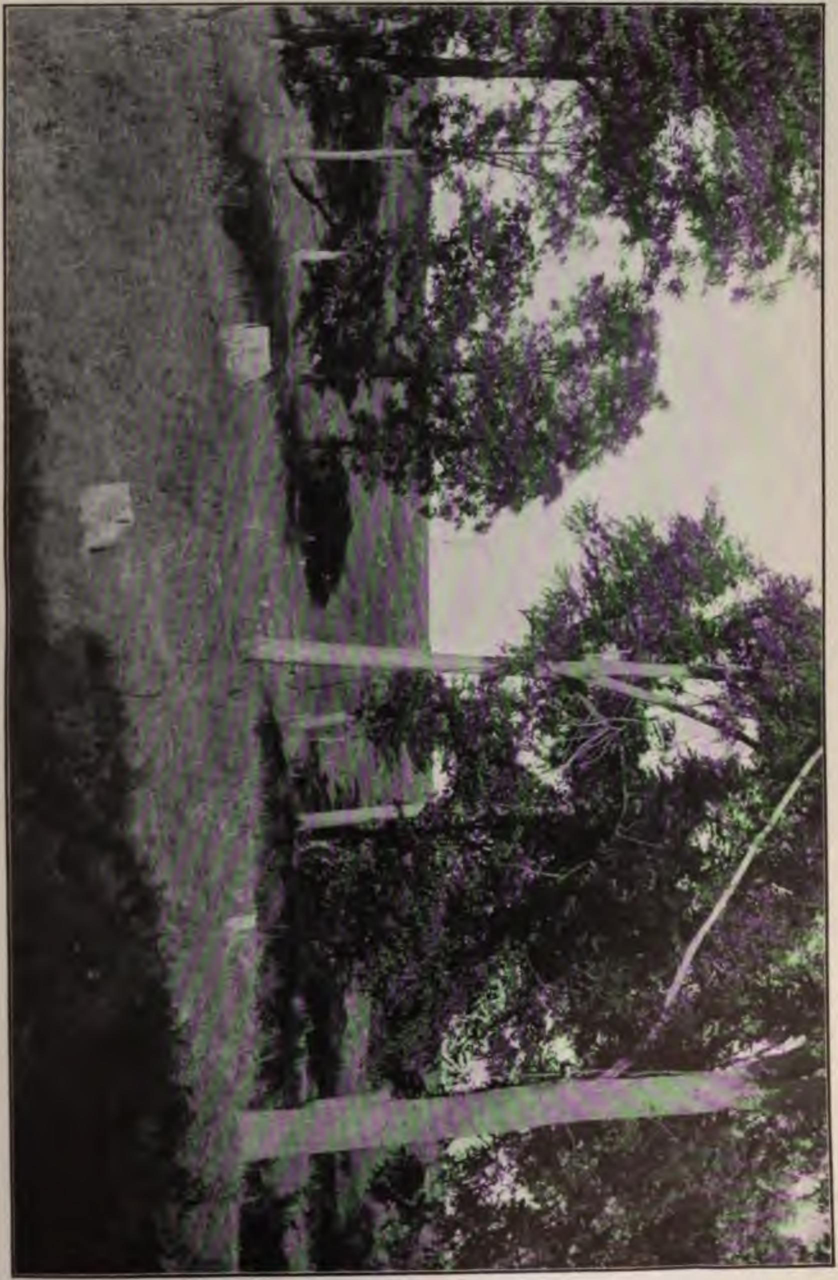
BRUSH LAND "BEFORE GOATING."

(Photograph furnished by Dr. J. R. Standley, Platteville, Iowa.)



BRUSH LAND "DURING GOATING," AFTER TWELVE MONTHS.

(Photograph furnished by Dr. J. R. Standley, Platteville, Iowa.)



BRUSH LAND "AFTER GOATING" TWO YEARS.

(Photograph furnished by Dr J R Standley, Platteville, Iowa.)

We have almost all kinds of browse in Arizona, but scrub evergreen oak predominates. We have millions of acres of it, too.—*Arizona.*

Oak, hazel, ash, fir, and madrona.—*Oregon.*

Live oak, post oak, hackberry, elm, black persimmon, black jack, mesquit, mountain cedar, wild plum, etc.—*Texas.*

Several kinds of oak, sumac, grass, and weeds. They will eat almost any kind of underbrush.—*Texas.*

Brush, weeds, briers, mullen, and thistles.—*Iowa.*

All of the undergrowth common to southern Iowa—plum, hazel, four or five kinds of oak, elm, three or four kinds of willow, crab apple, and buck bush (sometimes called turkey berry).—*Iowa.*

Browsing supplements feeding.—The browsing habits of goats is important in connection with the question of feeding. In some places they obtain enough browse to carry them through the winter. This is especially true in the Southwest, where there is so great an abundance of live oak. If snow is on the ground, or for other reasons the goats are deprived of opportunities for foraging, the trees are cut down for them. They pass though the winter in good condition with other feed. Wherever they are deprived of opportunities for browsing, they must be fed. Browsing saves feed. As far north as Nevada Mr. Bailey's goats subsist the winter through on sagebrush.

Browsing adds game flavor.—It is noted that many of the correspondents heretofore quoted state that it is the browsing of the Angora that gives to the meat the game flavor, thus leading some to name the meat "Angora venison." It is also stated that when deprived of browse and fed on grass and grain the game flavor disappears. There is no reason why this should not be true, for it is a well-known fact that flavor may not only be fed into meat, but into milk and eggs as well.

Common goats as brush destroyers.—The fact must not be overlooked that the brush-destroying habit is common to all kinds of goats. The common goats will do the work as well as the Angoras. The latter are employed for the purpose because they are more plentiful and because there is profit in their progeny for breeding purposes, their mohair, and their meat.

Preserving brush land for browsing.—Up to this point consideration has been given to these goats as a means of clearing land for pasture or for cultivation. There is much brush land in the United States which will support goats but is good for nothing else. If this is to be devoted to goat raising, it is, of course, not desirable that the brush be entirely exterminated. In this event a goat raiser should have several fenced areas and change the goats from one to the other frequently. They should not be permitted entirely to denude one field before they are transferred to another. It is true, however, that no matter how perfectly a woodland may be cleared of brush it will be covered over again with briers and brush in a few years if constant attention is not given it. It is not difficult to overpasture such land, and if the goats adopt the "peeling" practice the brush and trees will have greater difficulty in recovering.

Grass and weeds as pasturage.—Considerable interest has been manifested in the Angora industry in those localities where browse is not available and where grass and weeds form the only pasturage. A great many inquiries of this character have come to the Bureau, and the Bureau, in turn, has referred the matter to the breeders of the country. The replies received have been numerous, and show a difference of opinion. The predominant opinion, however, seems to be that the goats thrive best under the conditions most nearly like those of their original home. It is certainly the best argument to say that goats prefer any kind of browse to the most nutritious of grasses, which is true, and therefore browse is better for them than grass. While the more economical conditions obtain where there is an abundance of browse, it is not definitely settled that the goats will not thrive well on common pasture grasses. It is the opinion of the writer that this question is still an open one, as some successful breeders have had goats on the grass range for thirty years. From the standpoint of the goat's preference, there is no question that browse is the better food, and this in itself is a forceful argument.

There is always expense in connection with pasture grasses, but there is little or none with browse. One of the chief reasons why goats are receiving so much consideration at this time is that they are practically inexpensive feeders, and so all items of expense must be figured on if profit is to result. Pasturage, unlike browse, is not available all the year through. Therefore in prairie locations feeding in winter is a necessity. One of the recommendations in favor of Angora mutton is that it has the flavor of venison. This flavor is imparted by the browse, and is absent in the mutton made from grass or grain feed. Many claim that the animals make a better growth among the bushes than on open pastures, and that the quality of the fleece is much better. Contrary to this, however, is the opinion of Mr. Philo Ogden, of California, who says: "The fact is that the brush disappears from my range and the fleeces become heavier, with less wax or gum, and has more luster. Further, 75 per cent of the young stock are larger than their parents and shear more and finer hair." He says, also, that his experience in raising Jersey cattle was similar, in the respect that as they were taken out of brush pasturage and grown on grass pasturage they obtained a larger frame, so much so that sales failed because of a suspicion that they were not purebred.

Opinions of several correspondents of the Bureau are given in the paragraphs following:

It is not advisable to raise goats for their mohair on farms on which they will be obliged to feed to a large extent on grass and forage plants which are suitable for sheep.—*H. M. Williamson, Portland, Oreg.*

My experience is that on plains, and with grass as the only food, thoroughbreds would not do well, while the lower grades may do fairly well so long as the altitude is sufficient. Usually the mohair is somewhat dry and coarse where grass is predominant.—*G. A. Hoerle, Ridgewood, N. J.*

Where there is grass and brush, they leave the grass and eat the brush. They prefer browsing.—*Cook & Buck, Oskaloosa, Kans.*

Brush and weeds are the proper feed for goats, but they will do fairly well on grass alone.—*Harris & Baylor, Montell, Tex.*

They must have some brush.—*U. S. Grant, Dallas, Oreg.*

Experience has proven that they will do as well on prairie farms as on any other place, but they should have artificial shade for hot weather.—*E. H. Jobson, Lake Valley, N. Mex.*

High-bred stock will do specially well.—*V. Cladek, Larwood, Oreg.*

They will do well anywhere that they can get green food.—*Abe Blackburn, North Yamhill, Oreg.*

Angoras will do well on prairie farms if they are changed into different fields often or have a large pasture.—*Oscar Tom, Angora, Oreg.*

They do well on prairie farms, but do better on bushy or hilly land. One of the advantages of Angoras is their adaptability to rugged bush land which is unfit for other stock.—*C. P. Bailey, San Jose, Cal.*

Angoras will do well on grass and weeds, but will do much better if they can get considerable browse also.—*Josephus R. Barnette, Globe, Ariz.*

Only in small numbers will they do well on grass and weeds, but where they are kept in large numbers they need a good deal of brush and timbered country. Of course, they will do well on prairie if they get some corn.—*H. T. Fuchs, Tiger Mills, Tex.*

They will do first-rate on prairies, where grass and weeds are the only pasturage; but they will then have to eat the feed which the other stock require, whereas, on brush ranges the capacity of the land for carrying sheep and other grass-eating stock is not lessened by the presence of Angoras.—*W. G. Hughes & Co., Hastings, Tex.*

I pastured two summers on grass and clover, and they did as well as when on leaves and weeds. I am confident that a farm cleared of brush can successfully be used for Angoras.—*J. R. Standley, Platteville, Iowa.*

They need a great variety of feed and rough range, with plenty of pure, clear water.—*W. T. McIntire, Kansas City, Mo.*

They do well while the grass is green, but do not like dry grass or weeds, and always do better when they get some brush. They will have to be fed in winter on prairie farms.—*H. I. Kimball, Maxwell City, N. Mex.*

Pasturing with other stock.—So far as the goats themselves are concerned, they may be kept in the pastures where there are sheep, cattle, and horses. Their presence is in no way obnoxious to any of these animals. It has already been pointed out that a few of them in a flock of sheep are a protection against dogs. However, it is not best for the goats that they be kept in pastures with horses. This is especially important if there are kids, as the horses have a habit of playfully chasing any animal that is not large enough to defend itself, and they are apt to strike the kids. It is also important that the kids should not be in pasture with hogs, which are liable to eat them.

Number of goats to an acre.—This is a question frequently asked, but certainly no thoughtful person expects a definite answer. The number will depend, first, upon the object in pasturing on brush land, whether it is to kill the brush or to use it as a permanent pasture; and second, upon the quantity of feed obtainable. While one acre might be as dense as a jungle, another might have small thickets alternating with grass plats. Thus it will be seen that a definite answer can not be given to this question.

MOHAIR.

Quality of the fiber.—The word "mohair" is the technical name for the fiber of the Angora goat which is used in the manufacture of fabrics. The word comes to us, through the old French "mohere," from the Arabic "mukhayyar," meaning mohair cloth.

Besides the mohair there grows upon the Angora goat a short, stiff hair, which is technically known as "kemp"—a subject that will be discussed in another paragraph. It is held by some writers that this short hair does not occur on the pure Angora, and that where it does appear it is upon Angoras that have been bred up by crossing upon the common goats; in short, that it is a relic of the common goat. This argument seems plausible, at least, for two reasons: First, there is no certainty that any Angora goats now in existence are absolutely purebred, as many years ago the Turkish breeders began the practice of crossing upon the Kurd goats, and thus vitiating the blood; second, it is noticeable in building up a flock by crossing upon the common goats that the short hair is very prominent in the first cross, and gradually grows less as the crosses become higher.

The uses of mohair in manufactures are discussed on page 44 and need not be repeated here. The properties of this fiber which render it desirable are length, fineness, luster, strength, elasticity, and specific gravity, and these are relatively desirable in about the order given. There is no difficulty in securing length and strength, but the other properties must come by the most painstaking care by breeding. Having length, strength, and luster, the manufacturer wants the fiber as fine as can be bred. Good mohair averages about one five-thousandth of an inch in diameter; or, expressed otherwise, 5,000 hairs may be laid side by side in solid contact within the space of 1 inch.

Many mohair growers assert that the quality of the fiber depends largely upon the climate and the feed; and all are agreed that the fiber becomes coarser as the animal grows older. Schreiner says:

> If goats are to produce the best fleeces they are capable of, they must be maintained in uninterrupted good condition. They must have a variety of food, principally shrubs and aromatic plants, and lead an active life; they must, if possible, have running water to drink and be kept free from dust; they must not be kraaled (or shedded) except when absolutely necessary; they must have clean sleeping places and must not be crowded together.

The wide range of prices of mohair in the market is due to various causes, but to none so much as the unevenness in quality of fibers. As compared to the total production in the United States, the quantity of first-class mohair is exceedingly small. The tendency has been to breed for length of fleece and size of animal. While both these qualities are desirable, it ought to be plain to anyone that profit does not lie in these directions wholly.

Mohair in a general sense is an expansive term, covering the fleeces of goats of various Angora crosses. The fleece from a cross between an Angora buck and the common "nannie," although scant, coarse, and of uneven length, is unfortunately called mohair, just the same as that from the best animal. The fleece of the second cross is better, and that of the fourth and fifth crosses very good, provided, always, that first-class bucks have been used. The complaint of the manufacturers is that very little first-class mohair is produced in the United States. It has been demonstrated, however, that a first-class fiber can be produced here. Mr. Meeker, late consul at Bradford, England, the leading mohair market of the world, recently wrote as follows:

> There has been on exhibition at this consulate for the past week an American-grown mohair fleece forwarded to Bradford by Mr. C. P. Bailey, of San Jose, Cal. The fleece is that of a 2-year-old graded doe and is understood to have been grown on Mr. Bailey's ranch in Nevada. The quality of the hair has been the wonder of all who have seen it. It has been closely examined by several of the leading mohair dealers and importers, all of whom have expressed the highest opinion of it. One of them, Jonas Whitley, ex-mayor of Bradford, said: "I have now in my warehouse about $200,000 worth of mohair, both Turkey and Cape, and I am entirely sincere when I state that there is not a better fleece in the lot. I will buy all the American mohair like that that may be offered me at the market price. Should it uniformly equal this fleece, I do not know but what I would pay more than the market price. * * * I unhesitatingly say that the sample fleece is as good mohair as is grown."

A well-known spinner of New England is quoted by Mr. Bailey as saying that—

> The American mohair is better than any brought from abroad; it is smoother, makes a smoother thread, and runs spindles faster; it is silkier and softer, and I can pick out cloth made from it without looking.

Mr. G. A. Hoerle says:

> Samples of our best mohair which were sent to England were classed as equal to the best Turkish, while the best Cape hair was as much as 2 or 3 cents lower, a fact which proves that even if we finally should have to ship mohair to Europe it would, in the long run, pay as well as selling at home.

Those American breeders who have been taught to believe that the mohair of the Cape of Good Hope is so much better than that produced here will find encouragement in the following from Mr. S. B. Hollings, writing to the Midland News, Bradford, England, under date of April 27, 1900:

> When I state that the vast majority of mohair clips produced in Cape Colony does not fill the bill of our manufacturers I state the whole and sole reason why Turkish

sorts have been called upon very extensively in preference to that grown in South Africa. * * * I am stating a plain fact that Bradford users do not think that the Cape clip is as yet within 25 per cent of the general excellence of that grown in Asia Minor, and that much remains to be done before users here will avail themselves of that produced in Cape Colony in preference to that grown in Turkey.

The encouragement is not in the fact that the Cape mohair is so much poorer than the Turkish product, but because ours is no worse than that of the Cape. Although the annual product of the Cape of Good Hope is about 12,000,000 pounds and ours only 1,000,000 pounds approximately, the growers there recognize the importance of the American industry. Mr. W. Hammond Tooke, after discussing the Australian possibilities in this industry, says "the United States of America should give us more concern." In the same article, published in the Agricultural Journal of the Cape (May 25, 1899), he states that the breeding of goats here for mohair is no longer considered an experiment, and that the mohair is "much like a large part of that produced in the Cape, consisting of rather low grades, short and crossbred, and only suitable for combination yarns and for mixing with Turkey hair."

As illustrative of the superior value of the mohair from Angora vilayet and Cape of Good Hope, the following table and statement are copied from Schreiner's work (p. 44). The figures represent the average of the four years 1891 to 1894:

	Angora.	Cape.
Mohair goats.....number..	1,230,000	2,891,233
Mohair.....pounds..	3,360,000	9,982,709
Per goat.....pound..	2¾	[a]3½
Total value of mohair.....pounds sterling..	200,000	419,501
Per pound.....	1s. 2¼d.	[a]10 1/11d.
Money yield of mohair per goat.....	3s. 3⅛d.	2s. 11⅛d.

[a] Nearly.

The superiority of the Turkish hair is at once apparent, there being a difference in its favor in the above figures of nearly 4d. per pound, and also a difference in its favor in the net return per goat of nearly 4d., although the Turkish goats shear three-fourths of a pound of mohair less per goat than the Cape goats.

Mr. George B. Goodall, of the Sanford Mills, Sanford, Me., points out, in a recent letter to the Bureau, the defects of the American-grown mohair taken as a whole. His mills consume more than a million pounds of mohair annually, some being the domestic product and some the Turkey product, and thus he speaks from large experience. He says:

Before the domestic mohair growers can expect to get anywhere near Turkey prices they must do away with kemp and aim for a fine stapled hair instead of breeding for coarse, heavy fleeces, as many do. The coarser the fiber, the lower the value to the spinner. We often get small shipments of domestic fleeces as choice and fine as those grown in Turkey, which goes to show what can be accomplished with care and brains. The trouble is more with the grower than with the goats and the climate, for what one man can do another can do.

There are in these quotations hints enough to point the proper course for those goat raisers who desire to make their mohair crop a paying one. If an Angora goat is of most profit in clearing land of brush (as is the case in some localities), his work will be done just as well if he produces at the same time a first-class fleece; thus he may become more valuable. There is no reason why Angoras should have the preference for such work over the common goats, except that they may be profitable in other respects at the same time; therefore the better the fleece produced while destroying brush, the greater the value of the goats.

Influence of age and blood on fiber.—Reference has already been made to the fact that the fiber becomes coarser as the animal grows older. The fiber is also coarse upon younger animals of the lower crosses. The best fiber grows upon the animals of best blood; and among these that upon kids, yearling wethers, and does, in the order named, is preferred. The best fiber is usually very curly, in ringlets rather, but not kinky. It loses its curl and becomes thinner on the goat, coarser, and straighter as the animal grows older. A fiber of best quality is shown on the left of Plate V. It will be noticed by careful examination of this illustration that the samples become less curly as arranged from left to right. The reason for this is that the samples are coarser toward the right. The last sample in the illustration is from an old buck, the one next to it from an old doe, while the two samples on the left are from kids.

The weight and length of fleece.—The weight of the fleece is always a subject of inquiry and is a difficult question to answer, because of the controlling circumstances—such as climate, feed, care, and, above all, the degree of Angora blood in the animal. The briefest answer, and probably the best one that can be made in a general way, is that of Mr. C. P. Bailey, and is as follows:

Half-breed goats scarcely shear enough to pay for the shearing; three-fourths bred goats shear 1 to 1½ pounds, worth 15 to 20 cents; seven-eighths bred goats shear 2 to 3 pounds, worth 20 to 30 cents; fifteen-sixteenths bred goats shear 3 to 5 pounds, worth 30 to 40 cents.

He adds the important statement that the fourth cross, or fifteen-sixteenths, is the lowest grade that he would use exclusively for mohair.

It would be a difficult matter to state what is the average length of an annual fleece, but 10 inches would probably not be much out of the way. There is on record an account of mohair measuring 20 inches. Mr. U. S. Grant, of Oregon, reports a buck with a fleece 19 inches long. In the southern part of the country, where shearing is done twice a year, the fiber must necessarily be shorter. This is a disadvantage, as the spinners prefer a long fiber. Schreiner shows (p. 119) a picture of a buck carrying a 13-months' fleece, weighing 16 pounds, which touches the ground. The feet of the animal are just visible.

The weights of the fleeces in the United States are much greater than in Turkey and about the same as in the Cape of Good Hope. With reference to Turkey, Schreiner says: "It would seem that 14 pounds for rams and 8½ pounds for ewes are about the maximum weights of really first-class fleeces, and that if these weights are much exceeded the quality of the hair is inferior and a good deal of the weight is due to oil and dirt." In the Cape of Good Hope buck fleeces have surpassed 15 pounds and ewe fleeces 11 pounds. Information at hand indicates that the average weights of fleeces in Oregon exceed those of other sections of the country, especially in the warmer portions. This reminds one of the opinion of Colonel Black, that the fleece will be increased 1 pound in weight by moving the goats to the colder Northern States.

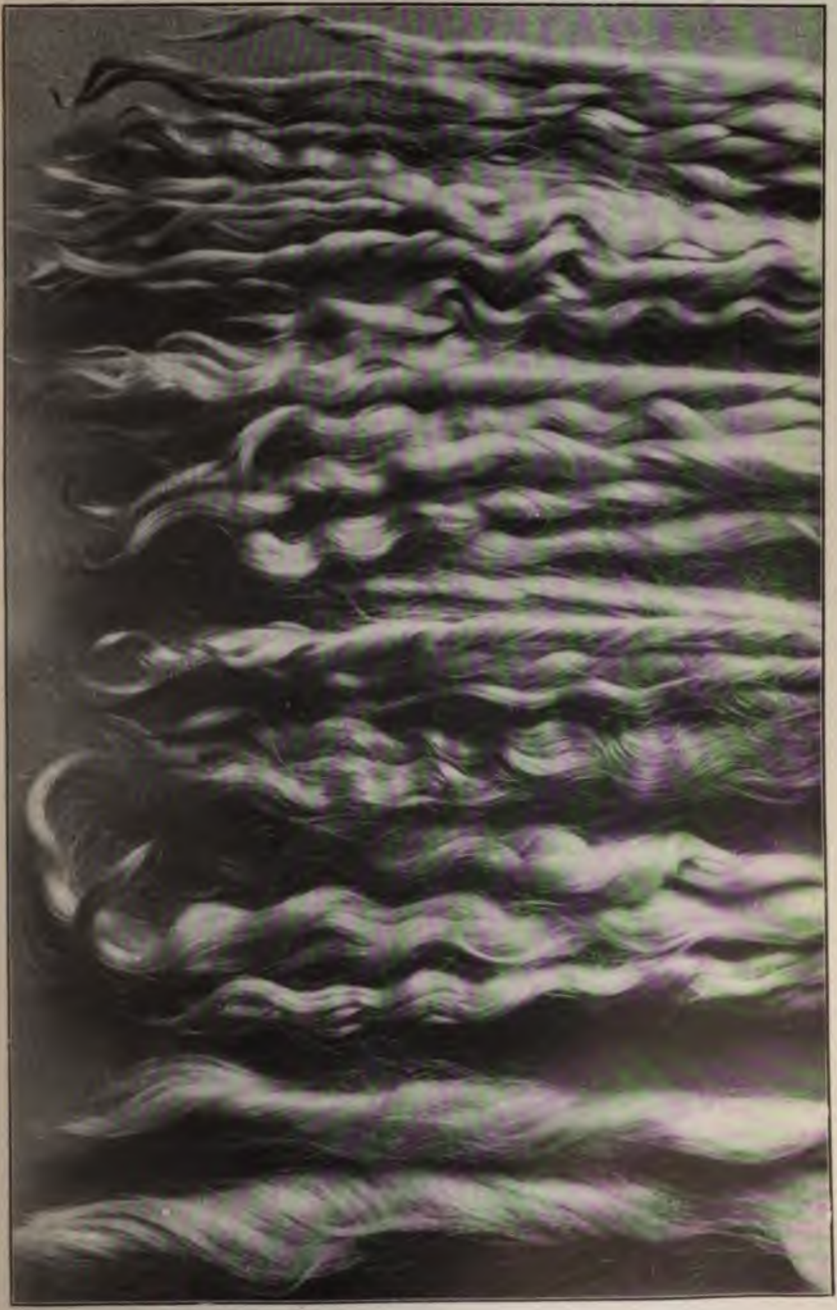
Schreiner says that the goats must not be crowded together in quarters if the best fiber is to be obtained, and Hoerle says that "goats running together in small herds will shear from 25 to 40 per cent more than when running in large herds." The size of flocks is discussed in another place (see p. 75).

The influence of semiannual shearing upon weight of fleece is also discussed elsewhere (see p. 76).

Kemp.—The term "kemp" used in connection with mohair refers, in a collective sense, to the coarse hair of the goats, and is especially noticeable in the lower grades. Hoerle says: "Kemp is the coarse, dead-looking hair all through the mohair, about 2 to 4 inches long, which I consider to be the degenerated remnants of the long, coarse, dead-looking outer coat of some common goats. It is usually thickest on the hind quarters of badly bred goats." Its presence in mohair always reduces the price in proportion to the amount that is present. The reasons for this are various—the hair is coarser than the mohair; it is lusterless; it is of various short lengths and must be removed, in doing which there is a heavy loss of mohair; and it will not, except to a limited degree, take the dyes used for mohair. This last statement is a striking fact and ought to be the means of prompting the mohair growers to strive to breed it out. Whether or not it can be done entirely is an open question, but it is believed by many prominent breeders that it can be done. Schreiner, however, considers kemp a part of the fleece that can not be eradicated completely.

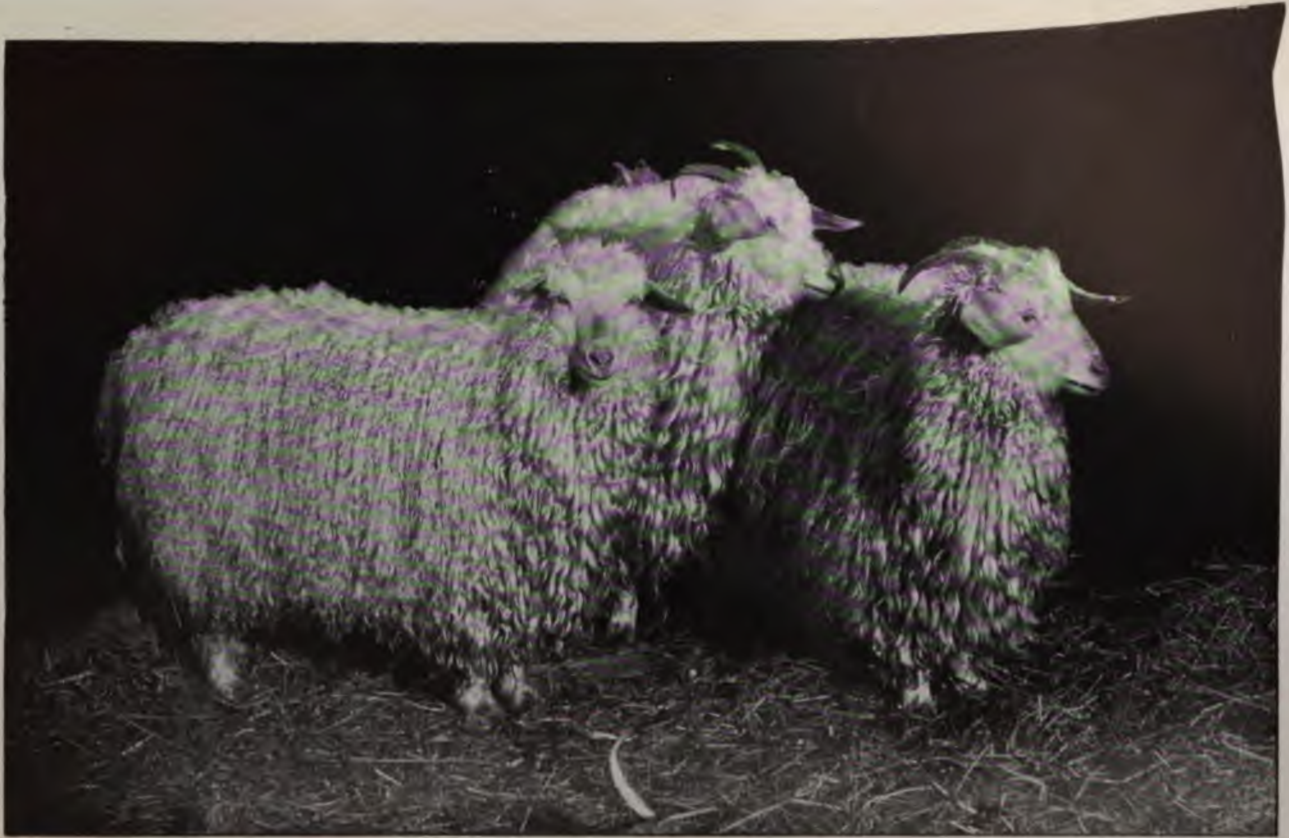
C. P. Bailey & Sons Company say:

> Kemp is a coarse white hair which grows from a separate root sheath between the mohair and is usually thickest upon low-grade goats. It is most noticeable along the backbone and around the tail and upon the thighs. We have never seen a goat entirely free from kemp, nor have we ever seen mohair from any part of the world



SAMPLES OF MOHAIR.

PLATE VI.



DOES, TWENTY-ONE MONTHS OLD. FLEECE OF NINE MONTHS' GROWTH.

(Photograph furnished by Dr. J. R. Standley, Platteville, Iowa.)

that was entirely free from it. Kemp may be best detected by separating the mohair upon the thigh of the animal and closely inspecting the roots of the hair. It will be seen as short, coarse, lusterless fibers closely intermingled with the long, silky mohair.

After the mohair sorter has done his work with a fleece the fiber is scoured, dried, and straightened, and then put upon a combing machine. This machine separates all fibers, whether of kemp or mohair, of 4 inches in length and under. Kemp of a greater length than 4 inches remains with the longer mohair. If there is much of this long kemp after the first combing, the fiber passes through a second combing, the machine being set to throw out the kemp and mohair of greater length.

The residue of these two combings, being a mixture of kemp and short mohair, is called noilage. The first lot of noils is about 2 inches long and the second 4 or more inches long. The length of the second noils will vary with different grades of mohair, depending upon the length of the kemp present.

Some mohair will shrink 40 per cent in weight in the first combing and 15 per cent in the second. The mohair thus combed is used in the fabrication of plushes and fine dress goods, while the noils go into the manufacture of carpets, blankets, hats, etc.

In a recent article in the Oregon Agriculturist, Mr. George B. Goodall says:

> A majority of the mohair growers in this country little realize how much kemp has to do in keeping down values of their clips. If they could spend a few hours in our sorting and combing rooms the lesson learned would be of great value to them—more than could be obtained by reading. In watching the combs at work they would notice some making 5, 10, or 12 per cent of noil or waste, while others will be taking out 30 or 40 per cent. Ask the comber the reason of this and he will reply that one lot has a much larger amount of kemp than the other. One fiber of kemp takes out five or six good fibers which should go into yarn. It may not generally be known why kemp is such an objection, but when we state that it will not take color, but remains nearly white in the goods after passing through the dye bath, you will understand why I write so strongly on this point. If you want to form some idea of how a fabric looks made from kempy mohair yarn, just look at a man's hair that has commenced to turn gray, especially dark or black hair.

Through the kindness of Mr. Goodall the Bureau of Animal Industry has received some samples of low-grade plushes for car seats which show the effects of kemp in mohair. Although in this case dyes were used which acted to some extent upon the kemp, the coarse, dull-colored hairs are easily seen. An effort was made to photograph the samples for reproduction in this paper, but it was impossible to bring out the details sufficient to show the kemp, although it was plainly visible, under certain lights, in the plushes.

The following is taken from Mr. E. H. Jobson's Angora Goat Raising:

> In the first crossing of goats the kemp hair will be paramount in appearance with the mohair and will be very coarse, and as the animal becomes better graded the shorter the kemp will be, and it also generally becomes of a finer fiber as the pure

blood is infused. Upon examining the best grade of goats that we have we find that the kemp is very short, probably only three-fourths of an inch in length, and the mohair on one of these goats is 8 inches long and weighs 5 pounds, while the kemp on the second goat is just as scarce and of the same length; also the mohair is of the same length; but the weight is fully 2 pounds more than it was on the first goat: herein lies the difficulty. Both goats have the same appearance so far as examination can determine, but the second goat is inferior to the first because the fiber of his hair is much coarser than the other and contains more of the kempy blood; hence the difficulty in examination appears in the quality of the fiber, which can be detected only by an experienced eye.

The kemp hair will always be known by its being shorter and very coarse and of a chalky-white appearance. It is particularly noticeable on account of its having no luster, which is characteristic of all mohair. The first place that kemp becomes extinct on a goat is on shoulders and neck—i. e., on the sides and along the ribs—and the last place for it to become extinct is along the top of the neck, down the backbone, and on down to the hocks, the hocks being generally the final place for the disappearance of the coarse hair; also you will find kemp to predominate on the belly. Do not understand me to say that the kemp becomes entirely extinct, for it does not, but it is covered up with the mohair and can be seen only by throwing the animal down and examining him carefully, and if he is apparently free from kemp you can examine him on the places above mentioned and you will invariably find more or less kemp, and generally you will find considerable all over the body. A good way to examine the hair is to pull out a small lock and spread it out in the hand, and you can readily discern any coarse hairs that may be in it. It is supposed by the best authorities we have that there are no goats in the world that are absolutely free from kemp, although it is confidently expected by many of the prominent breeders that it is only a question of a few years more of careful breeding until we have a kempless goat.

In addition to the above, Mr. Jobson writes to the Bureau his opinion that there have not yet been produced any goats absolutely free from kemp, but he believes that the intelligence of the Americans will enable them to produce such goats, and he himself proposes to devote several years to the effort. He proposes to begin this work upon the assumption that there is nowhere an absolutely pure Angora goat—that there is at present in all of them in some degree the blood of the common breed.

The discussion of kemp will close with quotations of the opinions of correspondents of the Bureau who have had experience in raising Angoras. It may be stated that a large majority of these men hold that kemp never disappears entirely. The quotations follow:

I don't think that there are 500 Angoras in the United States, thoroughbreds or crossbreds, that are entirely free from kemp. Judging, however, from what I have seen in former years, freedom from kemp can exist, even with second and third crosses, provided the right kind of common does are mated with really kempless bucks. Such experiments were made with bucks of the Price Maurice importations to Australia, of which one buck and two does came to Texas. Mr. Schreiner, the Cape Colony authority, says that none of the pure bloods (so called) imported into Cape Colony from Turkey were free from kemp, and, further, "that kemp can and will be entirely eliminated from our [Cape Colony] best stud goats of our most intelligent breeders I have no doubt whatever," with which opinion I fully agree.—*G. A. Hoerle.*

In all crosses it will still remain, to some extent at least, on some parts of the body; for instance, on the belly.—*H. T. Fuchs.*

It will never disappear.—*Harris & Baylor.*

If only the pure-blooded Angoras are used as sires, kemp will be imperceptible in about six or eight generations.—*Col. William L. Black.*

There is but little in the very best.—*Abe Blackburn.*

There is not much after the first cross.—*Oscar Tom.*

In the fourth cross it nearly disappears, but never entirely.—*C. P. Bailey.*

I can not find kemp in my thoroughbreds, although I have found it in billies that I bought for pure. I think it can be bred out with proper care in selection of billies.—*George A. Houck.*

Other deleterious features.—The very short hair, mane, kemp, and the hair that has been cut twice in shearing are, together, called noils, and this must all be combed out before the mohair can be spun. The noilage in Turkish mohair is only 15 to 20 per cent. In our domestic product it runs as high as 40 per cent. Noils are worth only 14 to 16 cents a pound, the same as short wool for blankets.

In some sections of our country, where the climate is dry and the soil distinctly alkaline, the natural animal yolk disappears from the mohair, leaving it dry, frowsy, and harsh. The dust of the fine alkali soil penetrates the fleece, so that much of the mohair grown in those sections is loaded with it, amounting in some instances to 40 per cent in weight.

Markets and factories.—Two of the questions which the mohair producers were asked to answer were: "Do you have any difficulty in disposing of your mohair?" and "Where do you market your mohair?" The answers to the first question were all firmly in the negative except in one instance, where an Arizona producer replied: "I have no difficulty in disposing of my good mohair, but my short and kempy stock goes slow and at a low price (23 cents)." There is much encouragement in these replies to those who may fear that the markets may not demand the supply. The ingenuity of the manufacturers in working the better grades into woolen fabrics and the poorer grades into plushes which make good car seats, horse blankets, hats, etc., has, no doubt, opened the way for the consumption of all that may be produced.

As to factories, there are more than a sufficient number in this country to manufacture the product; in fact, many of them do not attempt to use mohair for the reason that the supply is so limited. These factories of the United States are all in the East, and the principal market for the mohair is New York. The marketing center of the world is Bradford, England, where practically all the product of Cape of Good Hope and Turkey is sold.

Very few of the mills will purchase direct from the producer. They find it preferable to buy from the commission merchant, as he separates and classifies the fleeces, and the purchaser is enabled to make personal inspection. A few producers ship their mohair to Boston, and others, especially some of those in the Northwest, sell to commission men in Portland, while others of the West sell in San Jose, Cal.

Production.—The production of mohair will be considered elsewhere (see p. 82) in connection with the world's production and the imports and exports.

MANUFACTURES OF MOHAIR.

One of the reasons why the mohair industry has lagged so in this country during the fifty years since the introduction of Angora goats is that the use of mohair goods was subject to the caprices of fashion. It would not be strictly correct to say that the industry has even got beyond the influence of fashion, but it is at least nearly so. There is now a steady demand for the product of our country, and much is imported besides. Dame Fashion is still whimsical toward all-mohair goods, especially dress goods, but the mohair is mixed with other fibers for producing fabrics of strength and luster, and the home supply is not nearly equal to the demand. Because of the limited and uncertain supply, some mills which have at times used mohair no longer attempt to secure it. They are prepared to use it as soon as the supply will warrant the undertaking.

Mr. George E. Goodall, president of the Sanford Mills, Sanford, Me., who has kindly furnished the Bureau with valuable information, states that his mills consumed 840,000 pounds of domestic mohair and 460,000 pounds of Turkish mohair in 1899, a total amount of 1,300,000 pounds. While these mills are believed to be the largest consumers of the domestic product, there are thousands of pounds consumed by other mills (see p. 82). This proves, first, that there is a good demand for mohair, and second, that the usual estimate of the domestic production in 1899 as being between 600,000 and 800,000 pounds is far below the real amount.

Only a small percentage of the domestic product of mohair is of superior quality, as has been shown in previous pages. The greater amount is of inferior quality from various causes: First, the fleece from the crosses, beginning with the first cross, is called mohair, and is indeed worth something; second, all of the crosses up to the fourth or fifth have a great deal of kemp in the fleece (it never disappears entirely from any cross); third, efforts have been directed too persistently toward producing a large fine-looking animal, the fleece being a secondary consideration; fourth, the staple, when of superior quality, is often too short.

Many grades of mohair are mixed with silk and wool in a large variety of fabrics in which it formerly was not used. It is made into dress goods known as mohair, and much of what is usually called alpaca is nothing less than mohair. The fine fabric called camel's-hair goods is also of the best mohair, and not from the camel, as we would suppose from its name. "Chamal" is the Arabic word for camel, and the Arabs called the Angora goat the chamal. Mohair braids contest the markets with silk braids and are never out of fashion. The ways in which it is used with silk and wool are numerous. It adds to these fibers not only its brilliant inherent luster, but great durability as well. The growers of mohair are fond of quoting Dr. Davis, who stated in the Agricultural Report for 1853 that "I have socks [of mohair] which I have worn for six years and are yet perfectly sound." He is also quoted as saying that while in Asia he saw wrappers of mohair used by the natives which, they assured him, had descended from sire to son for three generations.

Mr. William R. Payne, an authority, is quoted below on the uses of mohair:

> The most important product of the Angora is the long, silky, wavy fleece, used either pure or in connection with wool, silk, linen, or "carlton" in a variety of fabrics for house furnishings and ladies' goods, brilliantines, linings, braid, plushes, astrakhan cloth, furniture coverings, curtain material, knit goods, fancy effects in shawls and dress goods, and numerous other textiles. * * * The short, low, and crossbred hair is used for blankets, lap robes, rugs, carpets, and low goods generally, but even then is worth more per pound than most sheep wool, varying from 10 to 21 cents per pound. The uses for mohair are increasing every year, and new outlets are being found for it as manufacturers are advancing in the variety of their products.

THE MEAT AND THE MARKETS.

The meat.—In building up a flock of Angoras from common goats (a subject which is discussed elsewhere) the males must not be permitted to grow into bucks of breeding age; and even among the high grades there are comparatively few bucks that should be retained as such for breeding purposes. They should be castrated early. The great majority of these wethers, especially if they are of the first or second cross, do not produce sufficient mohair of good quality to warrant flock raisers in keeping them. These should be converted into meat as soon as large enough. Those wethers and does which produce a fair quality of mohair may be retained for that purpose for a few years and then killed for meat. They are not, however, so good for this purpose as the younger animals.

There is a deep-seated prejudice, as has already been stated, against the use of goats of any kind for meat. This is founded upon ignorance rather than experience. The most ill-smelling "billy" of the worst possible type is by many made the standard of goat meat for the whole of the goat family. As far back as Abraham's day we read of goats being used for meat (very likely Angoras), and this, too, when there were many cattle and sheep. Certainly no prejudice existed against them at that time.

There is not much to be said about the meat of the common goat. It is not so generally used as that of Angoras. The flesh of their kids is considered very fine, and in some sections of the country goats of all ages are killed for meat. There are comparatively few common goats in the United States, and no attempt is being made to put them upon the market. The current report that goats are sold to the packers in the large cities for canning purposes is true in the main, but refers to the Angora grades. The discussion of this question in this paper deals with the Angoras of all grades.

The flesh of the Angora is exceedingly nutritious and palatable. Shropshire lambs, which are considered as among the best kinds of meat, are said not to be superior to a well-fed and well-cooked kid. In the Southwest these animals are as readily sold for meat as sheep, and the market has never been overstocked. A gentleman in Texas found a ready market for his canned Angora mutton, but was compelled to close his cannery because the supply of goats was not nearly sufficient to supply the demand. In the Northwest the principal use of the Angora is for clearing bushy land, and consequently they are not so extensively used as food. However, in nearly every locality there some have been killed for mutton, and there has never been a derogatory statement concerning its quality, so far as the writer is able to learn.

In Cape Colony it is said that the old does are slaughtered to furnish meat for farm hands and young wethers are sold to butchers in the town. In California many miners purchase Angora wethers in preference to sheep wethers for salting down for winter use, because, as they state, the Angora contains less fat, is more easily kept, and is just as palatable.

Mr. John L. Hayes, in the Overland (1870), said that, in order to test the qualities of Angora and sheep mutton, a dinner was to be prepared with the two kinds of meat, and that the guests were not to be informed as to which was sheep and which was goat, but they were to decide upon the merits of the dishes.

> Twelve disinterested men were invited to partake of the dinner and express their opinions of the various dishes they had eaten. Four decided in favor of the sheep's and eight in favor of the goat's flesh; and since that breeders in Monterey County have no difficulty in selling their goats to the neighboring butchers for the same price paid for the best mutton.

Mr. E. H. Jobson, of Lake Valley, N. Mex., is authority for the statement that the wealthy people of St. Louis recently began eating young Angora mutton and that it is now a regular portion of their fare.

One of the questions to which the Bureau sought replies is as follows: "In your opinion, what are the relative values of Angora flesh and mutton?" Several answers to this question, with other quotations upon the same subject, are given herewith:

As a food there is no meat that is purer or more tender. It is better than mutton, as there is not that excessive fat to contend with that is found on sheep. This is a good feature in the Angora venison. In their feeding habits they are very similar to a deer, which alone is sufficient proof of the merits of their food qualities. A young kid is as dainty a morsel as can be found in the meat line. The wealthy people of St. Louis recently took up the fad of eating young Angora venison, and, as a result, it is now a regular portion of their fare; and that fad had done a great deal toward obviating the prejudice which has so long existed against the Angora venison as a food. Angora mutton is now being sold on the market at a fraction of a cent less than sheep mutton.—*E. H. Jobson, Lake Valley, N. Mex.*

If Angoras are castrated or spayed when early kids, and properly fed before marketing, and if this is not done too far away from the slaughterhouses, certainly not more than a two-days' ride (road travel), their meat is fully as juicy as Southdown mutton, while, on the other hand, it is never greasy. This is not only my experience in Texas, but was also that of Mrs. Sarah K. Barmore, of Rockland County, N. Y., who kept a flock of grade Angoras and sold the progeny to her neighbors, principally summer residents from New York City. She emphasized the point that her customers preferred it to ordinary mutton, because it was not greasy. Feed Angoras as much as you choose, they will never lay on fat in thick layers all through the meat; as in the case of other domestic animals. They gain, rather, like deer, in meat principally, which has a slight venison flavor.—*Gustav A. Hoerle, Ridgewood, N. J.*

It is a curious fact, but true, that black-haired animals have darker skins and darker meat than white-haired animals. This accounts for that whiter appearance of the Angora goat flesh, which enables the dealer to market it as mutton. The black hair, from a poetic standpoint, casts its perpetual shadow on the viand and leaves it shaded. The goat flesh is a pleasant and healthy meat. It should be so, since the goat is an eater of clean food, and is possibly the freest from disease of any quadruped.—*Queensland Agricultural Journal, May, 1900.*

The flesh of the Angora goat is said to be superior in flavor to that of any mutton. We have eaten several half-bloods and found them delicious. Some of the meat was put on sale in a local meat market, and the purchasers came back a few days later and wanted more good mutton like that they got the last time. This, we think, is a strong recommendation. The meat is juicy and sweet and has a game flavor.—*Miller & Sibley, Venango County, Pa.*

The Angora is much more nutritious than sheep mutton, especially where the meat is grown on underbrush (leaves), as the following compilation of relative values of feed will show:

Character of feed.	Protein.	Starch, etc.	Fats.
	Per cent.	*Per cent.*	*Per cent.*
Good pasture grass	3.5	9.7	0.8
Rich pasture	4.5	10.1	1.0
Leaves of trees	5.2	15.2	1.5
Red clover	3.3	7.0	0.7

It is often prescribed by physicians for invalids and children for this reason. The meat is excellent, and not distinguishable from mutton of the same age and condition. It is largely sold as such in many of the larger markets, being regarded as a staple in the districts where it is raised.—*W. G. Hughes & Co., Hastings, Tex.*

It is the universal testimony of those who are famillar with Angora goats that the flesh of this animal is far superior to that of the common goat. The Angora is quite as valuable for its flesh as for its fleece.—*Oregon Agriculturist, Portland, Oreg.*

The meat from Angora goats is fully as good as the most juicy mutton. This meat is sought now more than at any previous time.—*Kansas City Drovers' Telegram.*

Anybody who has ever tasted a roasted or barbecued piece of Angora mutton will find it is better than any meat they ever tasted. Angora mutton is worth in the markets about the same as sheep mutton. I sell it to my neighbors at 4½ cents per pound, and in town I sell it at 5 and 6 cents per pound.—*H. T. Fuchs, Tiger Mills, Tex.*

It is better than mutton, being free from the oily taste of sheep meat and partaking somewhat of the flavor of wild meat.—*George A. Houck, Eugene, Oreg.*

Angora mutton is far superior to that of sheep and brings just as much on the market. Being free from disease, why not?—*Josephus R. Barnette, Globe, Ariz.*

Superior, as they live principally upon leaves and weeds, which gives to the meat a game flavor.—*W. T. McIntire, Kansas City, Mo.*

It takes an expert to tell the difference; and, if there is a difference, it is in favor of the Angora.—*Harris & Baylor, Montell, Tex.*

I believe it is superior in that it is absolutely pure, with no superfluous fat, and is as tender as the finest of venison.—*E. H. Jobson, Lake Valley, N. Mex.*

I prefer the Angora or common goat flesh to that of sheep, though I have seen many people who could not tell the difference.—*H. I. Kimball, Maxwell City, N. Mex.*

I consider one as good as the other.—*Abe Blackburn, North Yamhill, Oreg.*

Young goats are fine meat, but old wethers are tough and strong, although good when boiled tender and served cold.—*Oscar Tom, Angora, Oreg.*

The young wethers make the best of mutton. The meat is rich and juicy and free from the strong taste so common to the meat of the common goat. I consider it equal to mutton. We have sold hundreds of head for mutton, always reserving the skins, which are worth green from 75 cents to $2 each.—*C. P. Bailey, San Jose, Cal.*

I think one is equally as good as the other.—*A. T. Waln, Salem, Oreg.*

Angora is very much the best.—*U. S. Grant, Dallas, Oreg.*

It takes an expert to tell the difference, or to tell Angora mutton from venison where the goat had access to brush.—*Cook & Buck, Oskaloosa, Kans.*

I value Angora mutton 50 per cent above sheep mutton.—*V. Cladek, Larwood, Oreg.*

Angora flesh is worth 12 per cent more than mutton.—*Richardson Bros., Dubuque, Iowa.*

It is preferable to mutton, as it does not have the woolly flavor so objectionable to many people. During the browsing season the meat has a venison flavor, but this is lost when corn is fed in the feed lot.—*R. C. Johnston, Lawrence, Kans.*

I am sorry we have no regular market for goat meat. It is as fine as venison when killed in condition and properly cooked.—*W. Brown, Salem, Oreg.*

Local butchers will pay 10 cents per pound for the carcass dressed, the seller retaining the pelt, which brings $2.—*I. McGovern, Libby, Mont.*

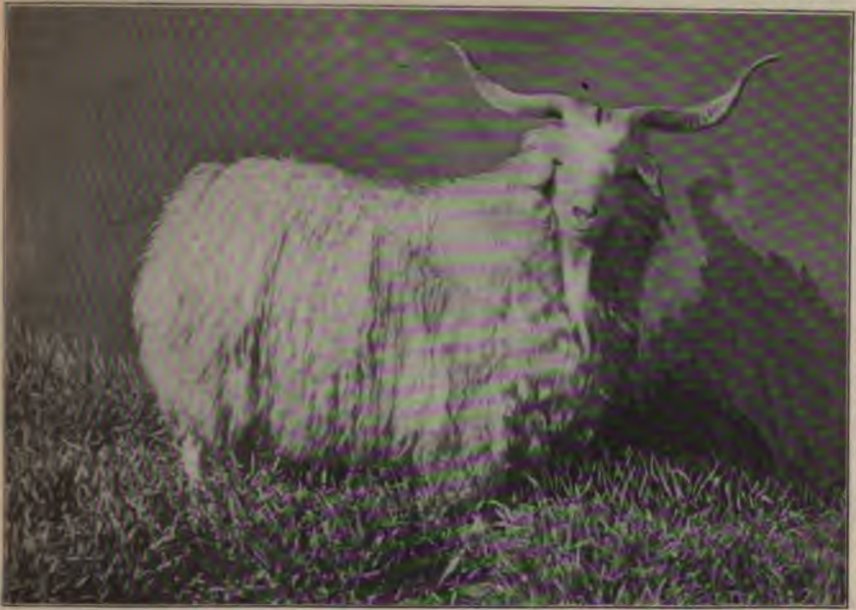


FIG. 1.—ANGORA BUCK "PASHA."

(Photograph furnished by C. P. Bailey & Sons Company, San Jose, Cal.)

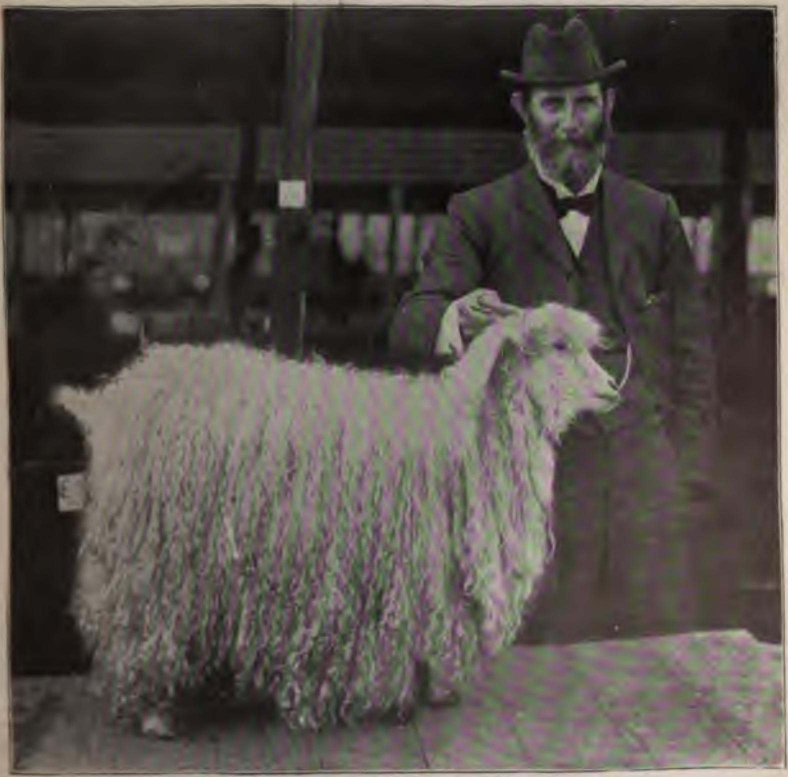
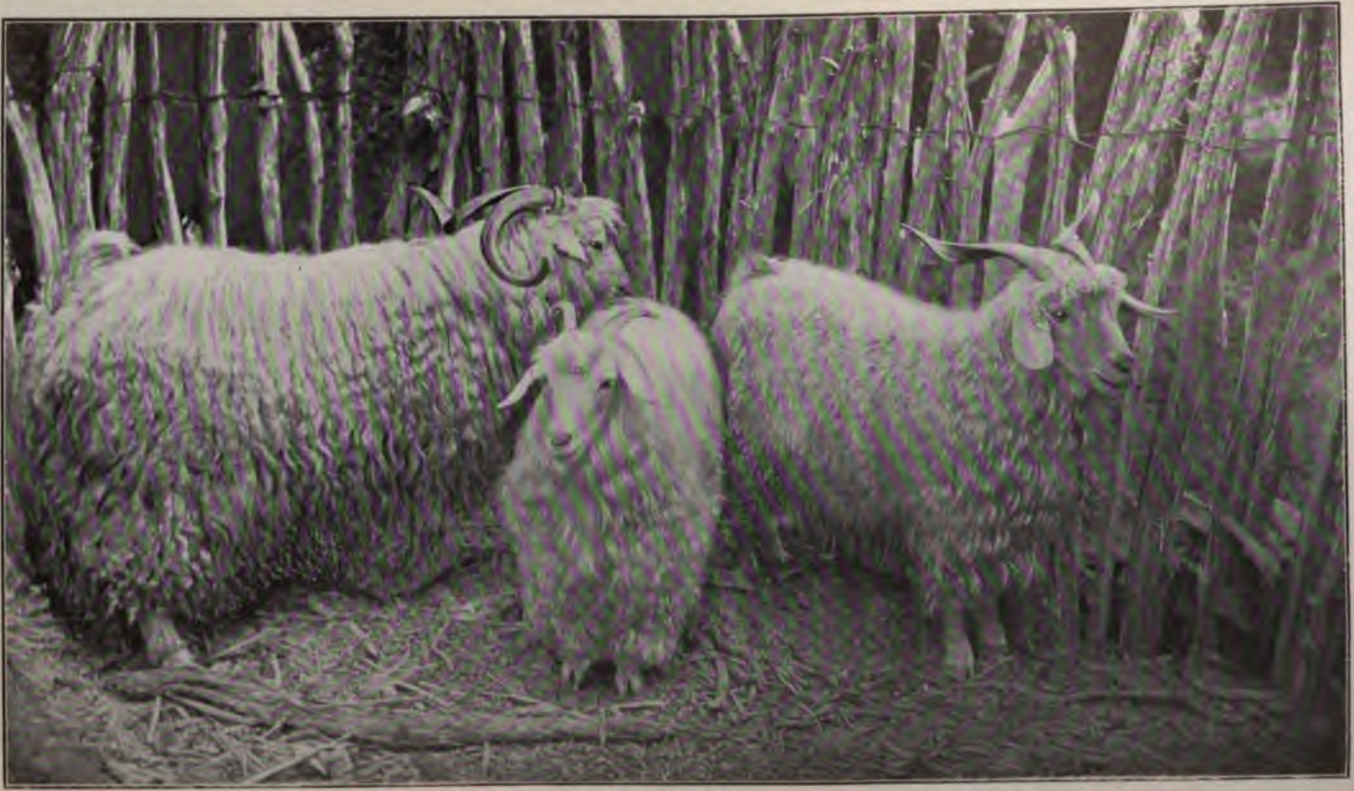


FIG. 2.—A YEARLING ANGORA IN CAPE COLONY.

(*From the American Sheep Breeder.*)



Fleece, 9 pounds. Fleece, 5½ pounds. Fleece, 6 pounds.

ANGORAS, SHOWING FLEECES OF SEVEN MONTHS' GROWTH.

(Photograph furnished by Harris & Baylor, Montell, Tex.)

The markets.—One of the first questions to be considered by a man who is about to embark in stock raising of any kind is the markets for his surplus. This question is first because it is the principal one and all important. The one who proposes to begin with a flock of thoroughbred or high-grade Angoras, such as will yield merchantable mohair, will not need to consider markets, as the increase will be employed to produce mohair; but a large number of flocks will be built up in the future, as they have been in the past, by the use of does of the common breed. This method will necessitate getting rid of every wether for two or three years. All does, of course, are kept for breeding with purebred bucks. It will be ascertained that the fleece of low grades is barely worth the cost of clipping it; that the skin is not so valuable for leather as that of the common goat; and that, as a rug or robe, the pelts are not so valuable as those of the higher grades. Therefore, if there is to be any profit from this part of a flock, there must be a market for the meat.

So many questions concerning this phase of the industry have come to the Bureau of Animal Industry that, in collecting data for this paper, it was decided to go beyond the newspaper accounts and ascertain the facts from the actual producers themselves. The question submitted was, "Do you have any difficulty in disposing of your surplus Angoras for meat?" The answers have been invariably in the negative. It should be said, however, that in the Northwest very few are used for meat. They are considered more valuable there as brush destroyers. The conditions obtaining there are not found in all localities where Angoras are raised. In many places Angoras will be kept where, instead of permitting them to destroy the brush utterly, efforts will be made to preserve brush pasture for them; in the Southwest they are not all required for destroying brush, and thousands must be sent to market.

The reason why goats are not seen oftener in the market reports of receipts and shipments is that they pass as sheep. It is stated, however, that increasing numbers are seen in the larger markets. In the Union Stock Yards of Chicago as many as 8,000 were received in one week last year.

While the goats pass as sheep, they are also sold to consumers as sheep. They have not yet brought as good prices as sheep, and it can not be hoped that they will do so until there is the same demand for their mutton, which will come as soon as the prejudice against goats disappears. The difference is very slight in some places. In Kansas City, for instance, the sheep bring about one-half a cent per pound more than goats. The packers buy them as goats and sell them as sheep in the form of dressed meat or canned.

Some of the answers to the question submitted by the Bureau are appended:

You ask if I have any difficulty in disposing of goats for meat. None at all. The packers here buy goats as goats and sell them as sheep. They make a difference of about half a cent a pound in favor of sheep when buying, and, as they never sell goats, they save that difference in selling.—*Thomas H. Mastin, Kansas City, Mo.*

None whatever.—*W. G. Hughes & Co., Hastings, Tex.*

Angoras bring now in Kansas City and Chicago within 4 or 5 per cent of the price of ranch sheep, while ten or twelve years ago not half that much could be obtained. Were it not for their unpopular name "goat," the meat would bring by far the highest prices in the retail markets—provided, of course, that they reach the market in proper condition.—*G. A. Hoerle, Ridgewood, N. J.*

I sell readily at the four large markets within 25 to 40 cents per hundredweight of the same grade of sheep. They are purchased by the packers. They dress out more meat than sheep.—*R. C. Johnston, Lawrence, Kans.*

We do not have to dispose of them for meat, as there are parties always anxious to buy. We would have no trouble to dispose of them for meat if we wanted to.—*Richardson Bros., Dubuque, Iowa.*

We do not. It usually sells for a little less than mutton.—*C. P. Bailey, San Jose, Cal.*

There is no sale here for goat meat. Wethers are generally used for their mohair or clearing land of brush.—*Oscar Tom, Angora, Oreg.*

There is not much use being made of them except for clearing land. A few are occasionally slaughtered here.—*Abe Blackburn, North Yamhill, Oreg.*

The demand for mutton goats is greater than the supply. We get good values for the mutton.—*E. H. Jobson, Lake Valley, N. Mex.*

They sell as readily as sheep, but bring from 25 to 50 cents per hundredweight less on the market.—*W. T. McIntire, Kansas City, Mo.*

None sold for meat here.—*V. Cladek, Larwood, Oreg.*

So far all goats are wanted for clearing brush land, and there is no trouble in selling them.—*W. Brown, Salem, Oreg.*

We have a local market which can use three times as much as we produce.—*Josephus R. Barnette, Globe, Ariz.*

Never had a surplus yet, being in demand at fair prices for clearing land.—*George A. Houck, Eugene, Oreg.*

None at all. If fat, the packers will buy them readily. If not, the sheep feeders will buy them for fattening.—*William L. Black, Fort McKavett, Tex.*

Have not. Have used and sold very few for meat, as they are in demand as brush killers.—*J. R. Standley, Platteville, Iowa.*

None at all. I could sell hundreds and thousands as easy as I could sell sheep.—*H. T. Fuchs, Tiger Mills, Tex.*

We do not, but on account of a prejudice against the name "goat," we have to sell at about 50 cents less than sheep bring.—*Conklin Bros., Newville, Cal.*

cases does the amount approach that given by the established breeds of milch goats, such as the Toggenburg, Malta, and Nubian breeds. Some of the records of the earlier importations of Angoras into the United States show that some of them were milked with success. At this time, however, they are not recommended as milch goats; they are more useful in other lines. It is stated upon the authority of some of the oldest breeders in the country that the likelihood of finding a good milch goat among the Angoras diminishes as the grade of the goat is raised. The milking qualities evidently come from the side of the short-haired goats.

The quality of Angora milk is said to be equal to that of any other breed, and more nearly equal to human milk than that of any other animal. For this reason it is considered the best substitute for mothers' milk for infants. An analysis of goats' milk for the British Goat Society, with an analysis of cows' milk for comparison, is shown in the table below. It should be stated that the cows' milk was from a cow which was a winner at a dairy show.

Comparison of analyses of goats' milk and cows' milk.

Element.	Goats' milk.	Cows' milk.
	Per cent.	*Per cent.*
Water	83.21	87.56
Butter fat	7.30	3.63
Casein	4.18	....
Milk sugar	4.10	8.81
Ash	1.21	....
Total	100	100

The milk has an additional value in that the animal is practically immune to tuberculosis. Less than a dozen cases of tuberculosis in goats are recorded.

THE SKINS.

The use of Angora skins, other than for robes, rugs, and trimmings as described below, is not very extensive. The skin is of a more delicate constitution than that of the common goat, and so does not make such tough leather. While the skin may be taken as an item of salvage from an animal that has died or been killed for meat, it would not be profitable to raise them for leather alone. If such skins happen to have a good fleece upon them, they will be worth more for robes or rugs, but even then they would not be profitable alone. There must be other sources of profit in addition to the skins. Angora skins are manufactured into morocco for use in binding books, and excellent gloves are made from them which bring from $1 to $1.50 per pair.

An impression is widespread, based upon immature consideration, that Angora skins may soon supplant the great number of goatskins which we now import for leather, but the quality of the skin precludes any such possibility. Upon this point the Oregon Agriculturist says:

> It is a natural mistake to suppose that Angora goatskins are worth as much, pound for pound, as common goatskins. We have several times noted the fact that this is not the case. Angora skins, after the mohair has been sheared off, will bring only a little over one-half as much per pound as the skins of the common goat.
>
> The only way to keep at home the greater part of the money now sent abroad to pay for goatskins will be to raise enough common goats in the United States to supply the demand.

Hides should be kept clean and should be dried in the shade; sun-dried hides are worthless. If the skins are to be tanned soon after being removed, they may be salted. If they are not to be tanned soon, they should be dried.

ROBES, RUGS, AND TRIMMINGS.

Angora pelts are used quite extensively as carriage robes, and they make up into very handsome ones. There was a time when the buffalo, the wolf, and other wild animals supplied the demand for robes in this country, but the extinction, practically, of the buffalo and the great scarcity of the other animals has forced us to look elsewhere for substitutes. An effort is being made to substitute hides of the Galloway and Polled Angus breeds of cattle, but their high cost will prevent their extensive use.

These conditions have resulted in a greater demand for Angora skins for robes. The skin is sufficiently tough for the purpose, and the fleece is easily dyed any desirable color. This characteristic has enabled unscrupulous dealers to sometimes pass them off on purchasers as the skins of some rare animals. In their natural color, the whiteness and brilliancy of which can not be excelled, the skins of the kids and younger does are made up into robes for baby carriages. There are probably a greater number used for this purpose at the present time than in any other way.

As a general statement it may be said that Angora pelts are worth from $2 to $3. The real value depends upon many things—such as the size of the skin, the length of the fleece upon it, and the time of year that it is taken.

As rugs these skins are found in many households, and they are both ornamental and durable. They may be used in their original whiteness, or be dyed any color to suit. Their softness makes them very desirable.

They are extensively used for trimming for children's cloaks and

Angora skins properly dressed are used, white or tinted, to manufacture rugs, robes, carriage mats, fur sets for children, trimming for ladies' furs, and also for dusters, horse head tassels, doll hair, and wigs. They are mostly imported raw from Cape of Good Hope and Turkey, and range in value, duty paid, from $1.50 up to $3.50 each, undressed. Domestic skins are worth from 50 cents for kids up to $2 each for large full-fleeced pelts. The low, crossbred, common skins and short pelts not suitable to dress are used by morocco and glove leather manufacturers, and are worth from 15 to 18 cents a pound for large sizes down to 10 and 11 cents for small ones and kids.

PROTECTION FOR SHEEP.

The ability and inclination of the buck to fight varmints has made him in many places a valuable acquisition in herds of sheep. It is said that dogs and wolves will not only not attack a grown goat, but will not venture into a herd of sheep where there is a buck goat. Many owners of sheep in this country recognize the value of the goat in this respect, and keep one or more for the purpose of protection for their sheep. This practice is especially desirable in pastures where there is no herder or immediate oversight. If one or two goats are placed when young in a herd of sheep they will remain with them all the time. An extensive breeder of Pennsylvania says: "While goats do not fear dogs, and will even fight, I prefer to keep dogs out. I have seen them drive a dog out of the yard, and oftentimes a single goat will protect a flock of sheep from attacks by dogs." If they are old and not accustomed to being with sheep, they will in all probability keep to themselves, away from the sheep. They may be depended upon to do this certainly if there is quite a number of them. They are more rapid walkers and more inclined to wander than sheep, and so will flock by themselves. Their protection to sheep will thus prove a failure.

It is quite amusing to see the courage of a doe when she protects her young kid from a dog, or hog, or flock of buzzards. Two of my neighbors' dogs got in the habit of killing my kids, and one doe protected her kid quite a while from the two large, vicious dogs until the neighbor caught one of the dogs and gave him a good whipping, when the goat assisted in this work by butting the dog with all her might. You should train the goats to be brave by taking your dogs into the goat pen with you, and, in case the dog refuses to run from a brave goat, scold the dog to make the goat think that she whipped him. If you had a tame wolf trained in that way you could train your goats to fight wolves.—*H. T. Fuchs.*

ENRICHMENT OF LAND.

The enrichment of land from the droppings of goats is decidedly noticeable wherever they are kept for a year or more. This factor is of no small importance where goats have been employed to clear the brush from land with the object in view of turning the land into grass pasture. Such land, especially if hilly and rocky, is usually in need of fertilizers of any kind if cropping is to be attempted upon it. The manure of goats and sheep is about equal in value. A California firm has been selling Angora manure for fertilizing fruit trees and lawns for several years. They get $6 a ton (delivered) for it in carload lots. Manure is considered as one of the resources in the best system of modern farming, and it should be taken into account by anyone who is keeping goats or contemplating doing so.

THEIR USE AS PETS.

The purebred Angoras are very graceful, and their beautifully shaped bodies and fine silky hair make them very attractive. There is no animal, except possibly the horse, that is more beautiful than these goats, and no animal is more cleanly in his habits. As pets for children they are very popular, if they can be kept where they will be harmless to vegetation and anything made of cloth. They have all the propensities of the common goat for destroying fruit trees and chewing any kind of cloth and of climbing upon roofs. All kinds of goats are mischievous in the extreme. The Angoras are tractable and are often harnessed to carts, as are common goats, and their beauty makes them more desirable for this purpose.

BY-PRODUCTS.

In the modern methods of economic production and manufacture nothing is permitted to go to waste. Whoever it was that said facetiously that the packers saved every portion of a hog but his squeal spoke the whole truth. The same truth applies as well to the carcass of any food animal. In the case of goats the horns find many uses, and the fat is said to be the best tallow known for the manufacture of candles. Any part of the carcass not useful in any other way is converted into fertilizer.

LOCALITIES ADAPTED TO ANGORA CULTURE.

CLIMATE.

So far as temperature is concerned, no place has been found that is too hot or too cold for Angoras. Although not partial to heat, they will stand it quite as easily as sheep. Shade is essential to success if the sunshine is very warm.

The climate in Angora, where the breed originated and is still supposed to flourish in its more perfect state, is extreme. A temperature as high as 85° F. is registered in the summer and as low as 0° F. in the winter. In Cape of Good Hope, where they are thriving well, the temperature goes higher in the summer, but not so low in the winter. The United States presents a wider range of temperature, where, in southern Texas and New Mexico, it may go above 100° F. in the summer, and in Idaho as low as 30° F. below zero in winter. The range of localities where Angoras have done well is from Guadalupe Islands, in the Lesser Antilles, to Ukamak Island, belonging to the Alaska Peninsula. Mr. M. L. Washburn, superintendent for the Alaska Commercial Company at Kadiak, says: "On Ukamak Island we have a flock of Angora goats, which have increased 60 per cent a year since they were placed there. They have given very good results in mohair, which is of good quality and fine texture." There are a few small flocks in New England and in nearly every State west until the Pacific Ocean is reached. The Western States have many thousands. Mr. William M. Landrum is quoted as follows:

> White goats can stand any amount of cold and snow, but sleet and wind are very injurious. On the other hand, they can endure the scorching heat of the Tropics. Their fleece is best at an altitude of from 3,000 to 6,000 feet above the sea level. The fleece never sheds on the Guadalupe Island, 210 miles from San Diego, at an altitude of only from 2,000 to 4,000 feet. I have grown mohair there 2 feet long, of lovely texture. We had 80,000 wild goats roaming on the island without any attention, except in slaughtering season, when we sheared the Angoras and slaughtered from 14,000 to 15,000 common goats for their hides and tallow. The goats all ran wild and took care of themselves. We were not at one dollar expense on them.

In considering Angora culture it is of more importance to study the climate with reference to moisture rather than temperature. It should be remembered that the original home of the goat is high up in the mountains, where the air is not laden with moisture. Under like conditions it thrives best here. Lowlands that are wet or marshy are not at all suitable. The effect of such situations soon makes itself apparent in a flock of goats. Foot rot is apt to give endless trouble, and the feet will need much attention in other respects. Therefore lowlands with much moisture and high temperature are not recommended for goat culture. It is a historical fact that the first effort to transplant the Angora goat outside of Asia was a failure on account of these conditions. This was in 1554, when a few individuals were taken to Holland, but they soon died, owing to the moist climate.

The effect of climate has a great deal to do with the character of mohair. On this point Mr. John S. Harris, of Oakley, Idaho, who is a gentleman of much experience, is quoted:

> Mohair grown here in Idaho is very bright when scoured, and, owing to the electric currents which exist in the air, the hair possesses elasticity, a property requisite to mohair. Goats do not grow a long staple here, but owing to the cold it is very dense. Neither do they grow so heavy a fleece as in a milder climate, owing to the dryness of the air. Plenty of green, natural herbage the year round would produce a heavier fleece and ultimately deteriorate its quality.

A high altitude is a locality always preferable in goat culture. This is especially true with Angoras, as the climate in high altitudes seems to have a beneficial effect upon the mohair.

Colonel Black, whose experience covers a period of thirty years, says that the Angora goat will thrive in any part of our country, and the yield of mohair will be greatest in the colder States. He estimates that the yield can be increased fully 1 pound by removing the goats from Texas to any of the Northern States.

CHARACTER OF SOIL.

Almost any kind of soil, except wet and marshy land, is suitable for these goats. Their preference is mountainous or rocky land, where they find it necessary to climb mountain sides and rocky cliffs to browse. Such situations not only afford them satisfaction in climbing and feeding, but the rocks serve to keep the feet trimmed. This is an important matter, for on soils devoid of stones or sand the feet must oftentimes be trimmed by hand.

One of the reasons for the freedom of goats from most diseases is that they require pure water, and in no place is better water found than in the springs and rivulets of hilly or rocky localities. Goats also require much exercise, much more than sheep, and such situations satisfy this inclination.

However, it must not be understood that rocks and hills are essential, although they provide for the goat an ideal situation. As stated above, almost any kind of soil is suitable except wet and marshy land. Goats are not partial to water in any form—in the soil or in the form of rain, snow, or sleet—and they drink a very small amount. Keep the goats dry overhead and under foot.

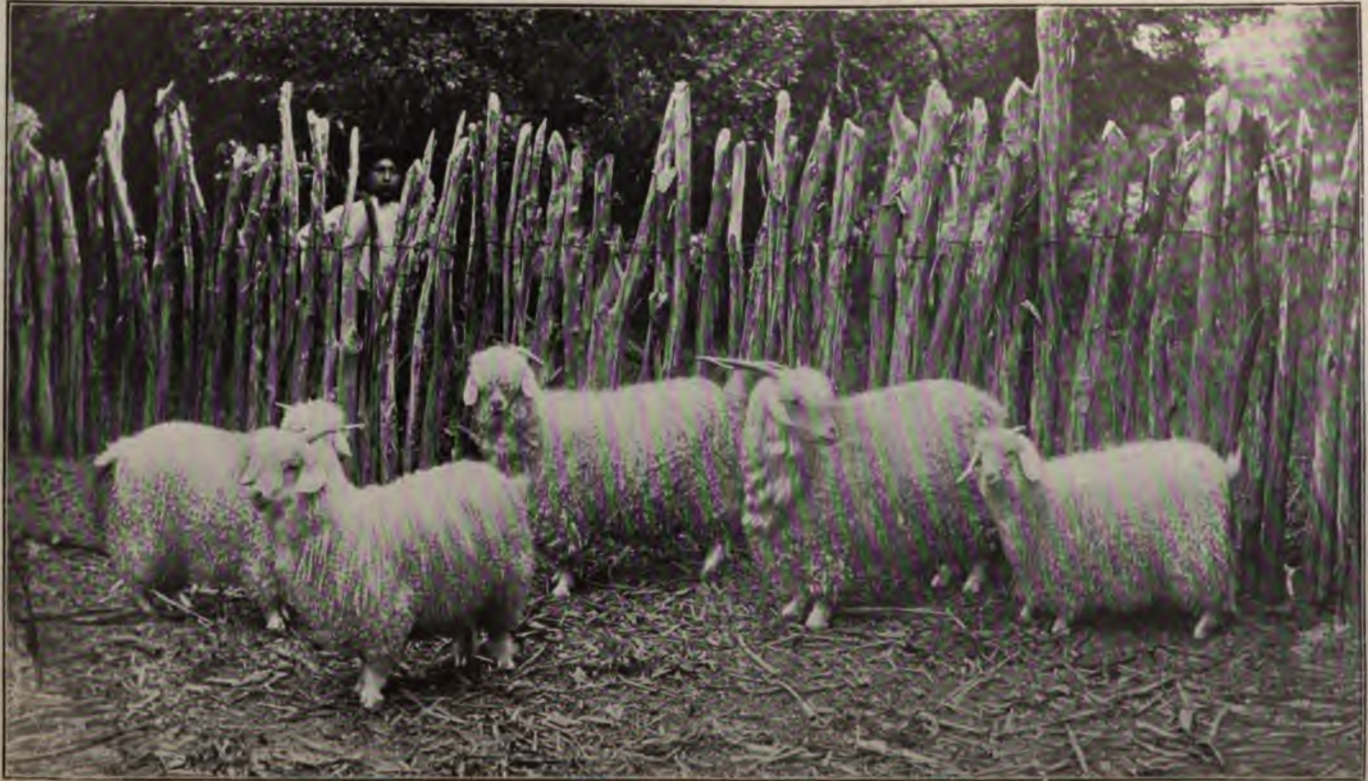
LAND AVAILABLE FOR GOAT CULTURE.

The habits of goats, as set forth in the earlier paragraphs of this paper, suggest at once to the informed person that there are in the United States millions of acres of land suitable for goat culture which are now serving no economic purpose whatever. Much of this would answer for sheep raising, but much more of it is suitable for goats only.

In the northwestern States there are hundreds of thousands of acres of forest land which, on account of the forest covering, is useless, but when goats clear it of all underbrush and put it in proper condition for cultivation, as they are doing there at this time, the land becomes more valuable for other kinds of farm crops. In other places there is much brush land which it is desirable to have goats transform into good pasture land, and there are also vast acres of mountainous and hilly districts which are ideal locations for Angora goats, but which could be of no importance as pasture or as tillable land.

Capt. Almont Barnes, in the article entitled "Keeping goats for profit," makes some estimates of the amount of unimproved land in the country, basing his calculations upon the reports of the Eleventh Census. He finds that the total amount of unimproved land in the United States is 265,000,000 acres. In Maine there are 6,000,000 acres in farms, of which 3,000,000 are improved; in Georgia are 25,000,000 in farms, of which 9,500,000 are improved. He concludes:

> There is, however, in the United States a large, continuous area, embracing over one-third of the States and Territories, which invites particular attention in connection with this subject. It includes the South Atlantic and South Central divisions



ANGORA GOATS IN YARD; ALSO SHOWS ONE KIND OF SUITABLE FENCE.

(Photograph furnished by Harris & Baylor, Montell, Tex.)

ANGORA GOAT RANCH OF H. T. FUCHS, TIGER MILLS, TEX.

(Photograph furnished by Mr. Fuchs.)

and a part of the Western division of the Census groupings[1], or twenty States and Territories, which together contain nearly 285,000,000 acres in farms, of which over 122,000,000 are improved and over 162,000,000, or 57 per cent, unimproved. The average size of farms and the average amounts of unimproved land are greater in this area than elsewhere, and the climatic conditions are more uniform.

It is safe to say that it will be many years before the matter of available land for goat culture becomes a problem. It is sufficient at this time to know that there is an abundance of suitable land everywhere in the country.

Mr. W. Hammond Tooke, in the Agricultural Journal of Cape of Good Hope for May, 1899, says:

> He [Schreiner] admits that it is generally agreed that very large portions of the States are well adapted to Angora goats, an opinion formed from actual experience over a number of years. This being so, it is difficult to understand how it is that the industry has progressed so slowly, seeing that the hair is valuable, the skins in great demand, the flesh prized as good, and the tallow as good as any that reaches the Chicago market. It is not more easy to understand when it is considered that large portions of the country are suitable for goats and not suitable for sheep.
>
> There seems no reason, therefore, to the outsider why the industry should not make almost as rapid progress in the States as it has in South Africa.

THE CARE OF ANGORA GOATS.

The preceding pages have no doubt given the impression that Angora goats are very hardy, and, indeed, it is true, especially if their foundation is upon crosses with the common goat; but this should not be taken by the careless or shiftless man as a license to subject his goats to all manner of discomfort with the expectation that the results will be fully as satisfactory as if rational attention were given them. That these animals can withstand extreme cold, such as that of the islands of Alaska, or extreme heat, such as that of Guadalupe Island, is strong evidence of their fortitude and of their adaptability to a wide range of temperature under proper care. The same fortitude is exhibited by horses, cattle, sheep, and hogs, but no one thinks of turning these domesticated animals out upon their own resources, as wild animals are forced to exist. That they can subsist upon vegetation which is utterly useless for any other purpose is evidence simply of their economical keeping; it does not permit one to conclude that they never need any other kind of feed at times. In a word, it is intended here to impress the fact that, if satisfactory results are to be obtained in goat raising, the animals must receive the same rational treatment that is received by other live stock when best results are sought. The goat is a hardy animal in the fullest sense of the word, but this characteristic only enables him to respond the more quickly and satisfactorily to careful treatment.

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[1] South Atlantic division: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida; South Central division: Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, Oklahoma, Arkansas; Western division: Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, California.

HERDING AND FENCING.

Goats require a great amount of exercise, much more than sheep. The one is by nature a browser and the other a grazer, and the browsing habit naturally requires more activity on the part of the goats. They are sensitive to restraint and do better if not herded, but of course this is often a necessity, and therefore should be done under as favorable circumstances as possible. So far as possible they should not be allowed to feel their restraint. If constant attendance is necessary, the herder should be of quiet disposition. The next best thing to the freedom of a range is a large pasture, where the goats may have oversight; but not constant attendance. Such pastures are considered the cheapest method of keeping these goats. They can easily be trained to come home by feeding a little and salting regularly at home.

The fencing for pastures is a matter which early concerns one who contemplates going into the business, for it is the current belief that goats will climb onto any shed of ordinary height or jump any fence that will stop other animals. While they will climb anything that is built in such a manner that it may be climbed easily, they will not jump any ordinary fence. They will, however, creep through if there is an opening large enough. The old-fashioned "worm" fence, especially if it leans outward, will not stop goats. The angles in such a fence are an incentive and a delight to them. Indeed, there are many hogs that will go over a fence of this kind.

In building a goat fence there are other matters to be taken into account than simply that the goats shall be kept in: the animals themselves (especially the young ones) must be protected from dogs and wolves from the outside. In the Southwest it is much more important to fence to keep varmints out than it is to fence to keep the goats in. So the double object must be kept in view in building a goat fence. Such a fence must be dogproof, hogproof, and wolfproof. A hog at liberty which has once had the taste of chicken, or lamb, or kid is a greater nuisance than any wolf or dog, and should be dispatched as being an enemy to other young live stock as well as kids.

One correspondent of the Bureau constructs a fence of ten-barbed hog wires, with posts set 20 feet apart, having three stays between the posts. The lowest wire is only 1 inch from the ground; the next four wires 3¼ inches apart, and one-half inch added to every space above. It is necessary that all the wires should be kept very tight. This correspondent adds the interesting note that many wolves are killed by screw worms in wounds received while attempting to crawl through such a fence. A good fence may be made of woven wire 3

Mr. Jobson says that a five-board panel fence 4 feet high is sufficient for goats. He also says that zigzag, or worm, fences are an incentive for the goats to climb, and that they will walk along the top of such fences as easily as on the ground.

If they are permitted to climb onto the roofs of buildings it will not be long before they will have them completely ruined.

SHELTER AND PENS.

A shelter is necessary during wet spells, and more especially if the rain is cold or in case of a sleet storm. Dry cold alone has little or no injurious effect after the kids are three or four weeks old, and they will even frolic in the snow when the mercury is at zero, and sleep with apparent comfort in an open shed. With their dense covering there is no reason why this should not be true; but this same dense covering, when soaked with cold water or driven full of sleet, is a deadly menace. Goats will not get wet if they have an opportunity to avoid it. They appreciate a shelter and will always seek it at night, and during the day in the event of storms. They are said to be excellent barometers, being able to foretell stormy weather, and always contrive to place themselves under shelter before the advance of a storm, if possible. Mr. Diehl says they will run miles to avoid an undesirable rain.

Goats should not be left on the range or in pasture over night. The latter is practiced to a considerable extent, but experience has shown that they are safer in closer confinement during the nighttime.

The pens in which the goats are kept at night should, above all things, be in such a location that they can be kept dry by drainage. Other live stock should be excluded, as they would only help to trample the ground into mud. They should have a dry place to stand and sleep, for they are apt to contract rheumatism in the knees. There would be little use in raising Angoras for their fleeces if they are compelled to wade through mud and filth, or be confined under these conditions. The fleece would soon become so soiled and matted as to be a "burden unto death."

The sheds provided for their shelter must be of a size to give an abundance of room. The goats should not, under any circumstances, be huddled together. If they are thus crowded in cold weather they will pile up, with the result that some of the younger ones will die from suffocation. One writer states that he has known as high as 30 being killed in this manner in one night. Mr. Oscar Tom, of Angora, Oreg., describes a shelter that proves satisfactory in the following language:

> The sheds should have eave troughs, and be boarded down to within 3 or 4 feet of the ground. There should be a ditch around the shed to prevent any water from running into it, and it should be open all around, so that the goats would not have to wait for others ahead of them to go in; a few cross ones could not block the way and

keep other goats in or out, and the rain would not blow in, but the goats would have plenty of fresh air. There should be a good fence around the shed at a distance of at least 50 yards, to keep cattle and horses from trampling up the ground and working it into mud. Have the fence high enough for the goats to go under, but never allow hogs to run into the goat shed, for goats are easily frightened after dark.

In some parts of the country the strong winds will blow rain under a shed such as Mr. Tom describes. In such cases, the side from which these storms usually come might be boarded to the ground. A better plan, in the opinion of some, is to have a few solid movable panels of fence to place around the openings of the shed on such occasions. This plan is convenient, too, as the panels may be taken away in fair weather, thus permitting a free circulation of air from all sides.

Shelter from the sun's rays should be provided for summer time. Although goats are able to withstand intense heat, they do not thrive well when subjected to it. For this purpose sheds more open than that described above are preferred, for the reason that the air will have freer circulation. Better yet than a shed against the sun's rays are large trees. In this case there is no obstruction whatever to the air.

FEEDING.

The principal reason why goats will be raised instead of sheep in some places is because they are practically inexpensive so far as feeding is concerned. This phase of the subject is quite fully discussed under the head of "Browsing and pasturage" (p. 26). They eat the leaves in summer and the soft twigs in winter, and if there is an abundance of either they will not require anything else to sustain life; but this condition exists only in certain localities, and other means must be adopted elsewhere. They are fond of straw and fodder of any kind. Plate XI shows where a herd in Iowa has access to a straw stack.

Notwithstanding the ability of goats to subsist upon coarse fodder in the winter season, the impression must not be held that they will thrive well upon it in the absence of browse. They will extract from these fodders all the nourishment obtainable, which is not very great, but must receive some supplementary feed. Any kind of grain will answer this purpose. Probably the best feed is oats, and if it is sheaf oats better still. In Texas some of the large goat raisers feed cotton seed by scattering it upon the snow so that goats will have to exercise somewhat in picking it up; besides, the time consumed in picking up the seed thus scattered insures better mastication.

In feeding grain care must be taken not to make the supply too liberal, unless the object is to fatten for slaughter. Goats easily become lazy on a plentiful supply of grain and will decline to go out to feed upon the brush. This is an important point, as their hardiness to a large extent is attributed to their feeding upon browse and to the resulting exercise.

As to the coarse feed for winter use, straw is eaten with relish; corn fodder is better and more nourishing; clover and alfalfa hay are excellent. Indeed, very little grain will be required where either clover or alfalfa hay is provided. Mr. Hoerle says:

> The quantity of food necessary to keep them in good condition varies according to the climate, but one-fourth pound of corn or its equivalent in other grain and 1¼ pounds of hay at a ration is about a fair average. With abundant winter pasture this ration once a day (in the evening) is sufficient; if the pasture is scant, they ought to have it both morning and evening, and on wet, cold days, when they are kept in the sheds all day, feed them three times or make their rations correspondingly larger. They should be taught early to eat their hay chopped, moistened, and sprinkled with bran, oil meal, or corn meal, which, if it digests easier if given in that way, will save about 20 per cent of the feed. They should also be taught to eat ensilage where practicable.

Sugar-beet pulp has been fed with success. The goats must be taught to eat it, but after once learning they seem not to be able to get enough.

In feeding either hay or grain absolute cleanliness must rule, as goats will not eat soiled food. There is no animal more particular about his food than the goat. He has no inclination for mud or filth in which to stand or walk, much less having to pick his food out of it. Bryan Hook, author of Milch Goats and Their Management,[1] says:

> The goat is of all animals the most fastidious in the matter of the cleanliness of its food, refusing, even though ever so hungry, to eat food that has been soiled or trodden under foot. For this reason a rack should be provided for the hay, and only as much given at each meal as the animal will consume, for that which has been trampled under foot will ever after be rejected, even though carefully collected and replaced in the rack.

When the production of mohair is reduced to a fine art, the question of feed will receive the most careful consideration, because of its influence upon the fiber.

The replies received by the Bureau to the question "Do you feed in winter? If so, what is the character of feed?" are interesting in many particulars. It will be observed that in the Southwest the treatment of goats in winter is not very different from that received by them in the summer. Below are given quotations from some of the letters received, credit being given to States only:

> Winters being mild, do not feed.—*Arizona.*
>
> I have to feed here. They like alfalfa best. In southern New Mexico they never need any feed, and are good mutton the year round.—*New Mexico.*
>
> We do not feed, there being plenty of evergreen brush.—*New Mexico.*
>
> Feed only during severe storms, perhaps an average of three days in the winter, and then any kind of good hay will suffice.—*Texas.*
>
> Feed some poor old goats on cotton seed and hay.—*Texas.*
>
> Winters are mild, and the goats live on evergreen brush (four kinds).—*Texas.*

---

[1] Vinton & Co., Limited. London, 1896.

Feed only when the ground is covered with snow and sleet. I like shelled corn best. Feed in troughs or scattered on the snow.—*Texas.*

Yes; in stormy winters we feed hay so placed that they can run to it in the shed, for they must have shelter.—*Oregon.*

Native hay.—*Oregon.*

Very little; a few oats, and straw.—*Oregon.*

We manage to cut grubs in winter, but give them some straw; will eat most any kind of straw or hay.—*Oregon.*

I feed out in the prairie, along with the sheep; feed wild hay and lucern (alfalfa).—*Idaho.*

Hay, oat hay, and corn from shock, unhusked; some roots, and more or less bran.—*Iowa.*

Sheaf oats, fodder, straw, and hay in spring.—*Iowa.*

They run on the range all winter.—*Texas.*

Have never had occasion to feed, except during a snowstorm, when we cut down branches of live oak.—*Texas.*

Do not feed, except the bucks at breeding time; give them wheat hay and barley.—*Texas.*

In Nevada we feed our kids some alfalfa hay, at night, for two or three months.—*Nevada.*

I find shelled oats best for weakly ones; usually cut brush for the main herd during winter months.—*Oregon.*

We find clover hay and wheat and oats cut in the dough. We prefer that to anything else.—*Oregon.*

Stock fodder and clover hay. They will do well on the same feed as sheep.—*Missouri.*

Not much grain, a little corn fodder, and wheat straw.—*Kansas.*

Shredded corn fodder, wheat straw, and a little corn in bad weather.—*Kansas.*

SALTING.

Goats require more salt than sheep, owing to the more astringent character of their food. If loose salt is used, the general custom is to give it once a week on regular days. If rock salt is used, it should be placed where the animals can get to it at any time. Rock salt is preferable, as it can be placed in boxes or troughs raised from the ground, and thus be kept out of the dirt and be of easy access to the goats at any time; and, too, there is no waste and no danger that the animal will eat too much of it.

MARKING.

KIDDING AND THE KIDS.

The kidding time is the most important in the life of the goats. For two or three days after the kids are dropped they are exceedingly delicate, and there will be no future success unless good care is given at the time. They can not "rough it" at this period, but will die from very little exposure or neglect. They are more delicate for a few weeks than lambs. When the kids are large enough to follow the flock they have constitutions stronger than lambs of like age and are able to care for themselves very well.

The proper time for kids to arrive is in the spring, about the time when leaves start on the trees and bushes. At that time there is milk-producing food for the doe, and the weather is also warm enough to favor the kids. The exact time may be governed, of course, by the service of the bucks and will be earlier in localities where the seasons are earlier. If kidding comes in cold weather, there will be greater difficulty in saving the kids. Warm stabling must also be provided, and the does will require extra feeding in order that they may supply milk for the kids.

A few days before a kid is due the doe should be separated from the flock. Some breeders would put her in a pen alone, while others would put as many as 20 in one pen. If the facilities are at hand, a small pen for each doe is better, for the reasons that the doe will sooner "own" the kid and there will be less danger of injury than if among a number. A doe knows her kid by the sense of smell, especially when it is young. This characteristic is so strong that some breeders assert that if two kids of different mothers are rubbed together, the does will often refuse to own them. Whoever cares for the doe at kidding time will find it an important part of his work to see that the does own their kids. This difficulty in any case will disappear in a few days, and it will then only be necessary to arrange for the does to get to the kids whenever they desire.

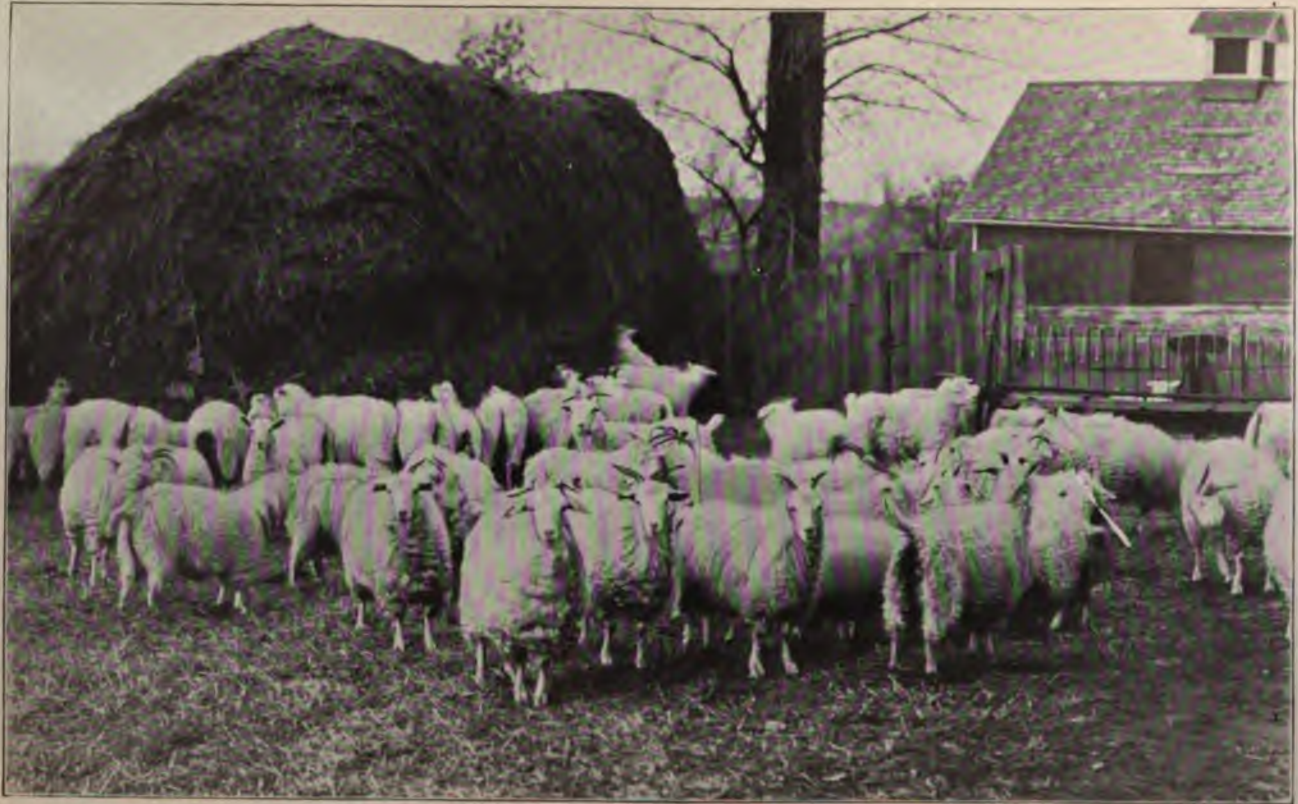
If kids are dropped on the range or in the pasture, they must be carried home and special care given to see that the does are made to own them, for many times they will refuse. A lamb will follow its mother very soon after it is dropped, but a doe will hide her kid as best she can in bushes, or behind a stone or log, and leave it there while she goes away to feed; and on her return she expects to find it where she left it.

The Mexican method of handling the kid is largely practiced in Texas and New Mexico and consists in "staking," or "toggling," the kid. When the kid is dropped, take it to a protected place (shed or barn), seeing to it that the doe follows, and "stake it out" or "toggle" it with a string about 14 inches long. Tie this string to one leg, changing occasionally to other legs to avoid lameness. This string should have a swivel in it to prevent twisting, and the kids should be carefully watched so long as they are so tied, which will be from seven to ten days.

The does should remain with the kids until they leave them of their own accord to go out for feed. The kids may then be allowed to run loose in a pen together until they are large enough to go out with the flock, which is when they are from four to six weeks' old, or when they are able to jump a board from 12 to 20 inches high placed across the gate. The height of this board restrains the kids that are too small to follow the flock and at the same time enables the does to go and come as they please. W. G. Hughes & Co., of Hastings, Tex., have a device for separating the does from the kids which is better than the board. It is a bridge, either end of which drops to the desired height. This device enables the does to go out and in without injuring the udder, which is apt to occur where they have to jump a board. A picture of this bridge in use is shown in fig. 2 of Plate XII.

The following is from "California Angoras," published by C. P. Bailey & Sons Company:

> There are in use two methods of handling kids at kidding time, namely, the corral method and the staking method. Each of these has points which render it most valuable under certain conditions and in certain localities.
>
> *The corral method.*
>
> This method may be used with any number of goats. With various modifications and adaptations which best suit the size of the flock, the climatic conditions, the facilities for feeding, etc., it may be used by the beginner with success. We have practiced this method in Nevada for more than twenty-five years. If the herd is a large one, say 1,000 head, three men are required to handle the goats at kidding time. The service of the bucks is so managed that the kids will be dropped gradually through several weeks. At the height of the season we expect from 75 to 100 kids a day. The season lasts about thirty or forty days. Fortunately, most of the kids are dropped in the daytime.
>
> We have four or five small corrals, fenced with 36-inch woven wire and large enough to hold 50 does and their kids. The doe should be allowed plenty of room, because if too close to her neighbor she may adopt the other doe's kid. Besides these small corrals, two large ones are needed, each large enough to hold 1,000 does. Along the fence of one of these corrals are a dozen small pens just large enough to hold a doe and kid. At the gate of this large corral a jump board is placed. This jump board is intended to keep back those kids which are not large and strong enough to jump over it. A 2-inch board about 18 inches high will answer the purpose. Another device sometimes used is a platform open at the end, so that the kids may run under it and thus avoid being trampled upon when the goats are going out over the platform.
>
> The small corrals may be made of panel fence and located in a meadow where some feed is afforded. The does should always have some kind of feed at kidding time.
>
> In the morning the flock is carefully examined, and all does which show signs of kidding during the day should be separated and placed in one of the small corrals. The large flock is now turned out, and one of the men is sent with them with instructions to take the herd at once as far as he intends to go for feed that day, and then



FLOCK OF ANGORA GOATS AT STRAW STACK.

(Photograph furnished by Capt. J. Murray Hoag, Maquoketa, Iowa.)

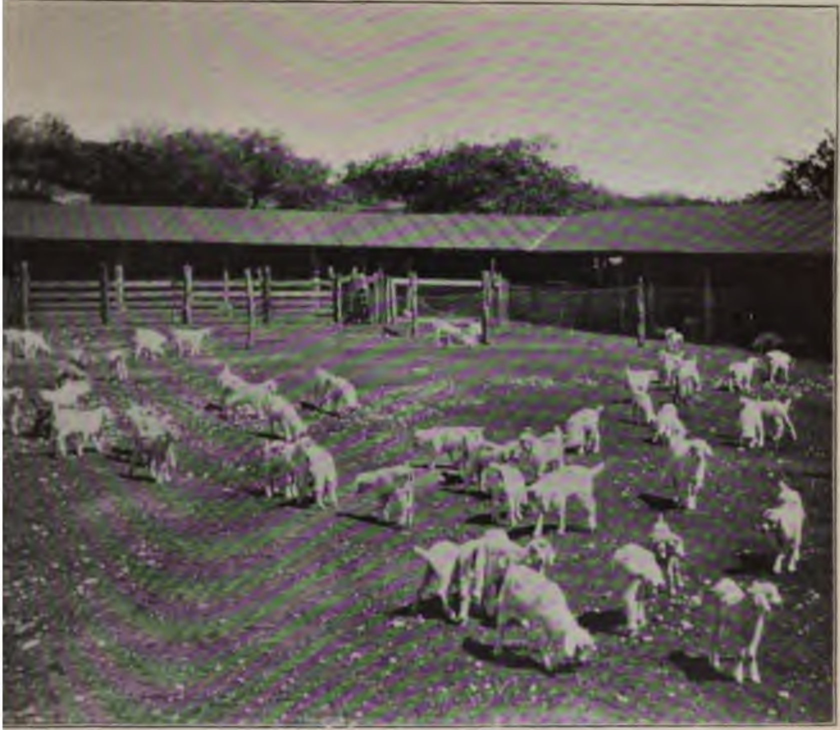
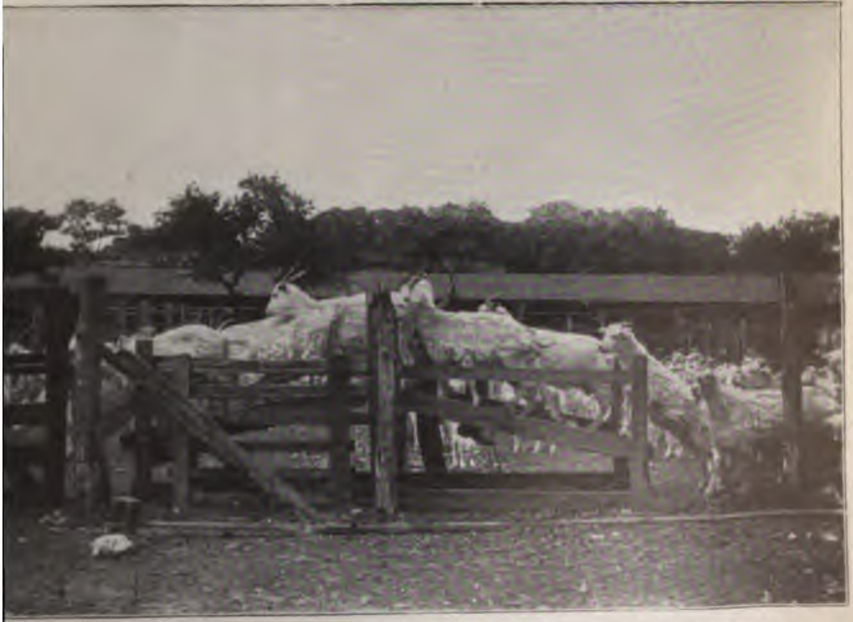


FIG. 1.—ANGORA KIDS.

(Illustration furnished by W. G. Hughes & Co., Hastings, Tex.)



IG. 2.—GOING TO PASTURE. (SEPARATION OF DOES FROM KIDS BY MEANS OF BRIDGE.)

(Illustration furnished by W. G. Hughes & Co., Hastings, Tex.)

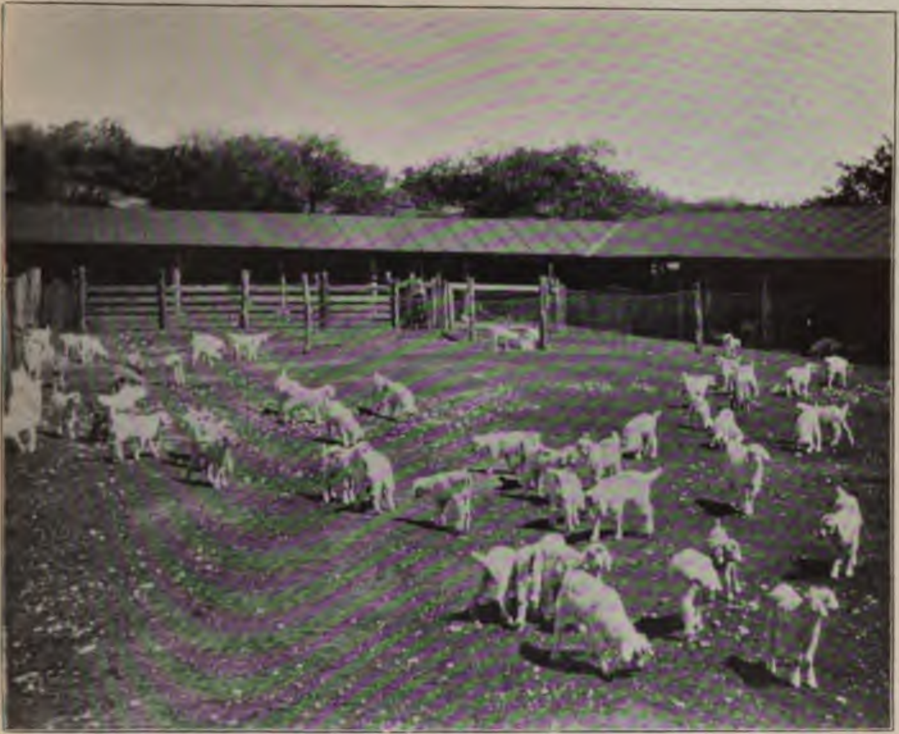


FIG. 1.—ANGORA KIDS.

(Illustration furnished by W. G. Hughes & Co., Hastings, Tex.)

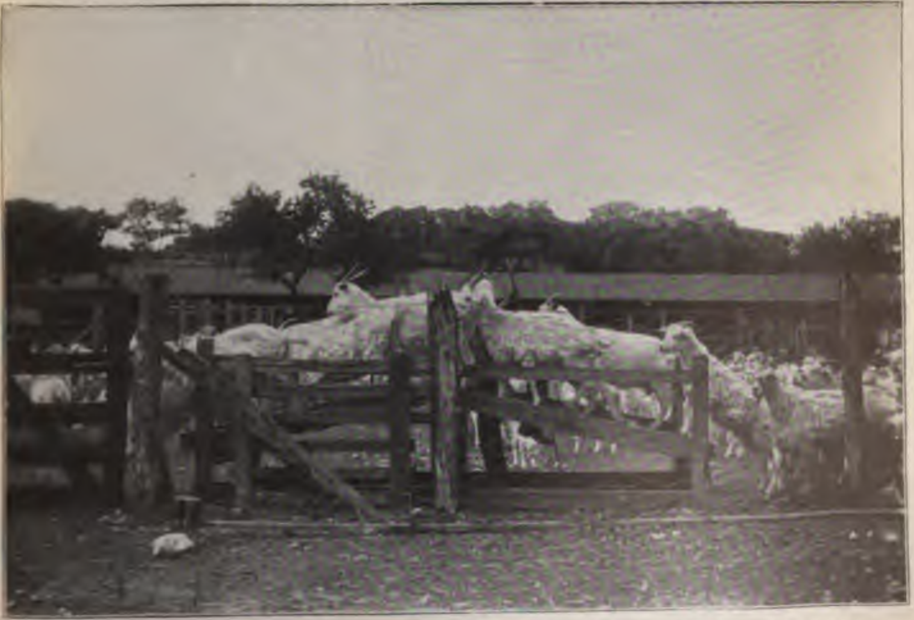


FIG. 2.—GOING TO PASTURE. (SEPARATION OF DOES FROM KIDS BY MEANS OF BRIDGE.)

(Illustration furnished by W. G. Hughes & Co., Hastings, Tex.)

to let them feed over a limited area and gradually work their way home. A few does will drop their kids on the range, and the herder should carefully note the number and their location. He should see that the herd does not feed around one of these does, as she is apt to leave her kid and join the band, thus necessitating much extra work in finding the kid and in giving it to its mother. Early in the afternoon the band is placed in one of the large corrals. Now the herder and another man go out with a wagon or on foot and carry the kids home, gently driving the mothers. The kids should not be handled or rubbed against one another more than is necessary, as the doe knows her kid by the scent. These does and kids are placed in the small corral which contains the does held back in the morning with the expectation that they would kid during the day. We now have one day's kidding in one of the small corrals. The does and kids should be watched to see that they are properly arranged. Do not bother them more than is absolutely necessary. Do not be in a hurry to make a doe own a kid. Do not drive the goats around one of the small pens.

The does should remain with their kids in the corral for a day or two at least, or until the kids are properly mothered. Any does which have not kidded should be taken out. The next morning any kids which may have been born during the night are put in another small corral with their mothers, as well as the does which are expected to kid during the day. The procedure of the previous day is repeated. In about three days, if one has limited quarters, the first day's mothers and kids may be put in the second large corral; that is, the one with the jump board at the gate. Now this "wet" band is placed in charge of one of the men and sent out to feed. The gate is opened, the mothers passing out over the jump board, and the kids remain in the corral. The herder must not range his goats near the does that are kidding upon the range, and he should be cautioned to come in later than the "dry" band, so as to avoid any possibility of their mixing. When his band arrives at the corral the gate is opened, and each mother hunts for her kid. Some of the kids may not find their mothers, and if after a day or two there are a few unnourished kids and some does with overdistended udders they should be placed together in the small pens along the side of the corral. The doe will own the kid in a day or two, whether she is its mother or not. The kids should not be allowed to become too weak before this is done. If one does not have enough small pens, a doe may be held while two or three kids suckle her, and thus tide them over until some of the small pens are vacant.

The next day the second day's kidding is added to the wet band. The wet band thus gradually grows, while the dry band decreases. During the day two men will be employed at herding the dry and wet bands, respectively, and the third man will be kept busy inspecting the kids, feeding the does in confinement, etc. If the weather is stormy some of the kids will have to be sheltered. The advisability of having the kids dropped gradually through a period of thirty or forty days will readily be seen. If help is inexperienced they may be gradually trained, or if the weather is stormy there will be time to get all things arranged properly.

The kids should not be allowed to go with their mothers until they are about 6 or 8 weeks old. If they go before this, they will probably become tired very soon and go to sleep. When they awake the band will have gone, and they are liable to be lost. During the day, while the mothers are feeding, the kids would eat a little grass if they could be herded near the corral.

As stated before, there may be many modifications of this method which will suggest themselves, but the above is a general outline of a method commonly in use.

The staking method.

This method is largely employed, even with large flocks, in New Mexico, but is possibly best suited to small flocks. It is without doubt the best method for certain surroundings. About the same amount of help will be required as with the corral method. There should be a good supply of stakes similar to tent stakes. There should also be a supply of swivel blocks which are about 4 inches long and having a hole bored near each end. A piece of rope about 6 inches long is fastened to the stake, and the other end is passed through one of the holes in the swivel block and a knot tied in the end. Another piece of rope of equal length is likewise knotted and passed through the other hole of the swivel block, the loose end being tied to the kid's leg. Any swivel will take the place of this primitive method. The herder or owner can busy himself during the winter months by making stakes and swivels and by cutting and attaching the ropes.

When a kid is born it is taken to a convenient place to stake and the mother is gently coaxed to follow. The stake is securely driven into the ground, and the kid fastened to it by the hind leg. The mother is left with the kid, in order that she may know where to find it upon returning from feeding. The kid should be staked where he can get plenty of sunshine, shade, and shelter. A small bush, a post, or a box will answer the purpose admirably. If there are twins, they must be so staked that they can suckle at the same time. The rope should be changed from one hind leg to the other occasionally, to prevent unequal development. Sometimes a vigorous kid gets thoroughly tangled and requires help.

The kid may thus be left staked until he is old enough to go with the flock, which is after six or eight weeks, or he may be put in a corral after a few days, as is done in the corral method.

There are many successful breeders who use this method entirely. One may expect to get good results if he follows either the corral or staking method carefully.

There is very small loss among kids cared for as set forth above. Many of the breeders on a large scale report the percentage of increase as 100. This does not mean that every kid lives, but that so few die that the loss is offset by the number of twins that are dropped.

The most practicable fencing to be used at kidding time is made of portable panels. By the use of these panels a pen may be made large or small and be moved from one place to another without difficulty and with very little work.

Weaning.—Kids should not be weaned until they are 4½ months old unless they are very strong; but they should not remain with their mothers after they are 5 months old. This especially applies to the buck kids, as they will often breed at 6 months of age or even younger.

Castration.—The buck kids not reserved for breeding purposes should be castrated when about two weeks old. The earlier it is done, the better will be the meat and the mohair. It is pointed out in previous pages that the mohair from wethers ranks with that from the does, and the flesh is superior to that of the does and inferior only in small degree to that of the kids. A cool day should always be selected for the operation of castration and careful attention given for a few days.

inches long, with wooden swivel in center. Leave them staked until after they are marked and castrated and well owned by the mother. Sometimes kids are herded with their mothers and sometimes by themselves until they learn to be herded. If not handled properly and the kids are allowed to mix together, the doe loses the scent of her kid, and young does will often disown them.—*F. O. Landrum, Laguna, Tex.*

This is the most critical period in the handling of goats. The kids are generally collected daily, as soon as dropped and able to stand and suckle the mother, and are confined in a corral for several weeks, much of the time tied to a stake driven into the ground. It is not safe to let them run with the flock until they are a month to six weeks of age, as they are liable to drop out of the flock and be lost.—*Col. W. L. Black, Fort McKavett, Tex.*

The kidding season is the time when the work and care comes. The kids are more delicate than lambs, and require a great deal of care.—*Harris & Baylor, Montell, Tex.*

The easiest way to get through kidding time is to put all the does that are soon to bring kids in a separate small pasture where they can be looked up easily. In case of bad weather they should be brought into their shed every evening before sundown; but if the weather is dry and not too cold they can be left out, and all the does will likely own their kids. Of course, the kids will not follow their mother as lambs do, but will lie down in a thicket or under a bush, a weed, a log, or a rock, and remain there till the mother comes back to it, even if it should have to wait till it starved to death; but after a kid is a few days old it is able to follow its mother, although it is best to keep the kids at home. Kids need not suck oftener than twice a day.—*H. T. Fuchs, Tiger Mills, Tex.*

I stake the kid in a barn for two weeks. The mother goes out in the daytime to feed and is put with the kid at night. After two weeks the kid is turned loose and kept in a pen until 2 months old, when it is allowed to go out with the flock.—*Henry Fink, Leon Springs, Tex.*

We keep the nannie and kid to themselves so far as possible for a day or so, and do not allow more than 20 nannies and kids in the same pen until the kids are over a week old, nor more than 50 nannies and kids in the same pen until 2 weeks old. Kids are kept in the pen day and night until a month old, and are then allowed to run outside the pen during the day to eat a little; the feed may be furnished them in the form of cut branches if there are no bushes near the pen. They should also have access to water after 4 weeks old. When 6 weeks old they can go out with the flock for a few hours in the afternoon, the flock being brought in at midday for this purpose. After eight weeks they can go regularly all day with the flock. We use a bridge for the purpose of "cutting back" such kids as should not go out with the flock.—*W. G. Hughes & Co., Hastings, Tex.*

Protection from rain; confinement in a corral or small pasture until the kids are 6 weeks old. We allow the does to jump over a 21-inch board to get food and return as they please. We separate all does every morning that will drop kids within two or three days and keep them in a pasture by themselves.—*Conklin Brothers, Newville, Cal.*

I put nannies that are soon to kid in an open pasture (not bushy). As the kids come, gather them into a corral with a shed or barn in it, taking the mothers with them. Keep the kids in the corral until they can jump over a 16-inch board, turning their mothers in and out evening and morning. At about 2 weeks of age they are usually fit to run with their mothers.—*George A. Houck, Eugene, Oreg.*

I aim to have a field of fall grain or reserved pasture to turn does in a few days before kidding commences, and turn the does in another pasture as fast as they drop their kids. Keep the kids up about two weeks, then let them go with their mothers.—*Oscar Tom, Angora, Oreg.*

Put the goats in a small pasture near a shed. If stormy, take the kid and doe to the shed at once. Every night put all the kids and does in the shed. Put bars up 20 inches high, and when the kid can jump over, let it go. Without a shed in this State you could not raise two out of ten kids; there is too much cold rain in kidding time—March and April.—*U. S. Grant, Dallas, Oreg.*

Put the nannies by themselves and then look after them once or twice a day to see that the kids are able to get up and suckle. Don't bother them, if they are all right and are in a sheltered place, until three or four days, and then change them to suit your convenience.—*W. W. Smith, Eola, Oreg.*

Take all the nannies out from the other goats as soon as they kid, and put them by themselves. I have about 100 small pens in which I put the nannies. Put the young nannies and old ones in different pens. Here they remain for four or five days and they are then turned into a larger pen, but not more than 50 should be put together.—*G. M. Scott, Malta, Idaho.*

Comfortable shelter and close watch to see that the kids get milk promptly. Put the doe and kid away from flock for a few days.—*J. Murray Hoag, Maquoketa, Iowa.*

We have a man on the spot all the time to help the goats in kidding, if necessary, and also to see that the kids begin to suck.—*Richardson Brothers, Dubuque, Iowa.*

Have good warm shelter, and under no circumstances allow cold rain to fall on the kids till after they are 2 weeks old. The shed should be open to the south, so that the sun can shine in on the kids. Turn the does out of the shed once a day, and leave the kids in the shed for the first two weeks. By that time the kids will be old enough to follow the doe.—*W. T. McIntire, Kansas City, Mo.*

I always keep the kids in a corral until they are old enough to follow the doe, which is when they are about thirty days old. In taking the kids to the corral care should be taken to get nothing on them that will change the scent, for does are very sensitive. If two kids from different does are rubbed together, the does will often refuse to own either of them. All kids should be castrated before two weeks old, as there is less danger and they do not get so sore.—*H. I. Kimball, Maxwell City, N. Mex.*

I cut out the heavy ewes from the rest of the herd, and hold them in a close herd, and catch the kids and bring them with their mothers to the corral, where each kid is staked separately with a toggle, or swivel, being careful to see that the mother knows where the kid is. After this I let the new mother goats come and go at will, only noticing them enough to see that they come to their kids regularly. The kids should be watched closely in order that they may not get tangled up and hurt. When they are about 2 weeks old they are turned loose in a corral and a board is put at the gate over which the mothers jump in going to and from their kids. When the kids are 3 months old they may be allowed to go with the herd.—*Josephus R. Barnette, Globe, Ariz.*

THE BUILDING UP AND MANAGEMENT OF A FLOCK OF ANGORA GOATS.

THE BEST FLOCK.

It is assumed that whoever goes into the business of raising Angora goats does so for the production of mohair, rather than meat or skins, and so it is to his interest to have a flock that will yield a profit from the beginning. The best flock for this purpose is one composed of thoroughbreds.[1] Such a flock will yield good mohair from the first.

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[1] The term *purebreds* is not used here, as there is strong objection to it by many of the best breeders, on the ground that there are no purebreds, as explained elsewhere. As the term *thoroughbreds* will exactly suit the purposes of this chapter it is preferred, leaving the question of *purebreds* to be discussed by others.

Those who enter upon the business of goat raising, however, must make their operations conform to their capital, the same as in any other business. They will find that desirable does will cost from $5 to $12 each, and bucks all the way from $50 to $100 each; so that a large herd of this kind, although preferable, will cost a small fortune, and is beyond consideration by most people who will engage in the industry.

BUILDING UP A FLOCK FROM SMALL BEGINNING.

Another plan that may be pursued by one who has limited capital, but time and the patience to wait, is to begin with a few first-class animals and build up a flock from these. The result will be satisfactory, and the only drawback is the length of time required. After all, this may be the wisest plan for most beginners to pursue, as experience, so necessary always to success, will be gained as the flock increases.

BUILDING UP A FLOCK BY CROSSING UPON THE COMMON GOAT.

It is noted in the historical part of this paper that the Turks many years ago began the practice of crossing Angora bucks upon Kurd does. They probably had in mind the twofold purpose of producing thereby a hardier goat than the pure Angoras and of increasing the number of goats in order to supply the increased demand of Europe for mohair. Crossing the Angora bucks upon the common goats of the United States has been practiced since their introduction, and the results have been very satisfactory in many respects. Many of the large flocks of Texas and New Mexico have had Mexican does for their foundation. Building up a good mohair-producing flock upon this plan requires five or six years. The advantages are that the does with which the beginning is made are cheap, costing from $1.50 to $2.50 per head. During the first and second crosses there are many twin kids, thus increasing the herd in that proportion—a condition not existing, except to a small extent, among either the purebred or thoroughbred Angoras; the size and hardihood of the progeny are increased and the liability to disease decreased.

Care should be exercised in starting a flock by this method to select only such common does as are entirely white; any other color, however slight, is objectionable. If otherwise, the results might be satisfactory, but the probabilities would be the contrary. In handling the crosses the breeder often finds that atavism becomes apparent when it is most objectionable. For instance, the progeny for two generations of a doe having black spots might appear all that is desirable, while the third generation would produce the latent color.

In starting with a bunch of common goats that you want to use for raising a graded flock of shearing goats you should use only as pure white goats as you can get, and you should allow no colored goats in the flock. You should also dispose of all those that have long, coarse hair on the thigh and on the fore legs, below the shoulder.

In fact, the common goats that you want to start your flock with should be nice and smooth built, with small head and short, smooth hair and small horns. From muleys you can raise heavy shearers, but their mohair is not quite so fine.—*H. T. Fuchs, Tiger Mills, Tex.*

If bred for the purpose of quick propagation, and with very fine, robust goats of both sexes to begin with, in six years five or six crosses can easily be obtained if nutrimental advantages are favorable; and if really first-class bucks, having all the most valuable points this side of perfection, can be procured, and inbreeding carefully avoided, even our common short-haired and smooth-coated goat will, after the fourth cross—say, beginning with the thirty-second—show improvement, which in a large flock on general inspection would defy detection by anyone but an expert judge of Angora goats.—*G. A. Hoerle, Ridgewood, N. J.*

It is always quite necessary that the common does should be of the short-haired variety. Long-haired ones will give trouble in persisting to throw out long hairs among the mohair.

The buck used upon these does should be the best one can afford. The better the buck, the better the result. There will be many twins among the kids from this first cross, and if proper care is exercised at kidding time it will not be difficult to increase the flock as much as 100 per cent. The higher the cross, the fewer twins will be dropped. As the fleece upon the first cross is not worth more than the effort to clip it, the males among them should be castrated when about 2 weeks old and disposed of for meat as soon as old enough. The females among them, being half-blood Angoras, are kept for service with another thoroughbred buck. The result of this second cross is three-quarter blood Angoras. The mohair from them has a marketable value, but is very limited in quantity and usually mostly kemp. It is best to deal with this cross in the same manner as with the first cross. If this method of procedure is followed up to the fifth or sixth cross a flock will result that will produce most excellent mohair.

It has no doubt occurred to the reader that we now have four or five different grades of does, beginning with the common breed. Therefore after a thoroughbred flock has once been produced in this manner, each year brings forth another one from the same sources, and this condition continues as long as the breeding life of the does continues.

PROPER AGE FOR BREEDING.

Goats of both sexes will sometimes breed when they are 5 months old, and often at 6 months, but from the fact that they are at this age but a month or two from weaning time and are not nearly full grown, it is obvious that they should not be permitted to breed. They reach maturity when about 16 or 18 months old, and they ought not to breed before this time. If bred earlier the kids will not be so strong or so well developed. They are in their prime when from 2 to 6 years old, but with proper feeding in winter they have been known to breed regularly until 15 years old. The average life of goats, however, is about 12 years. There should be no tendency to keep does until they are very old unless they bring kids of exceptional merit, for it must be remembered that their mohair gets coarser, and consequently less valuable, as they grow older.

The accompanying illustration (Fig. 1) shows how the age of goats may be determined until they are four years old. After that, in the absence of definite information, the age is a mere matter of guess, based upon the general appearance of the animal. The new teeth are longer and larger.

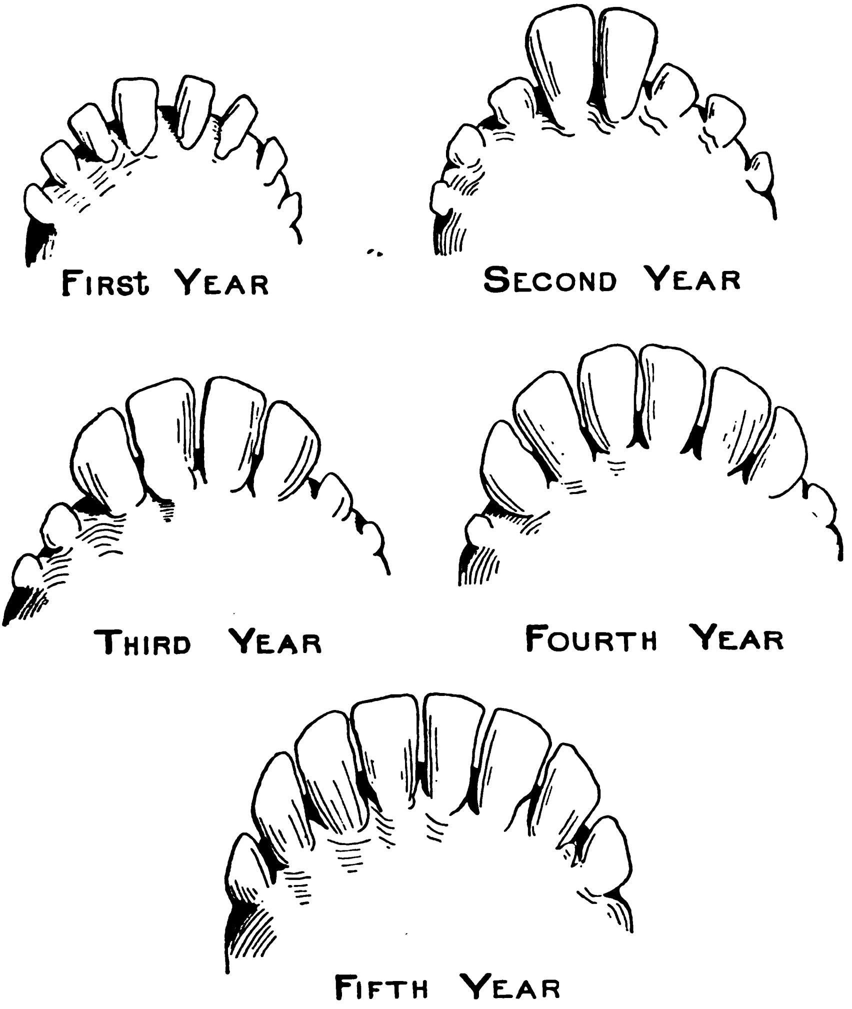


FIG. 1.—The age of goats shown by the teeth. [Copied from Bryan Hook's "Milch goats and their management."]

IN-AND-IN BREEDING.

In-and-in breeding means the breeding of related individuals. The term is indefinite, and with some refers to a close relationship and with others any degree of relationship. The correspondence of the Bureau with goat raisers shows that the term with them means generally the breeding of individuals of close relationship.

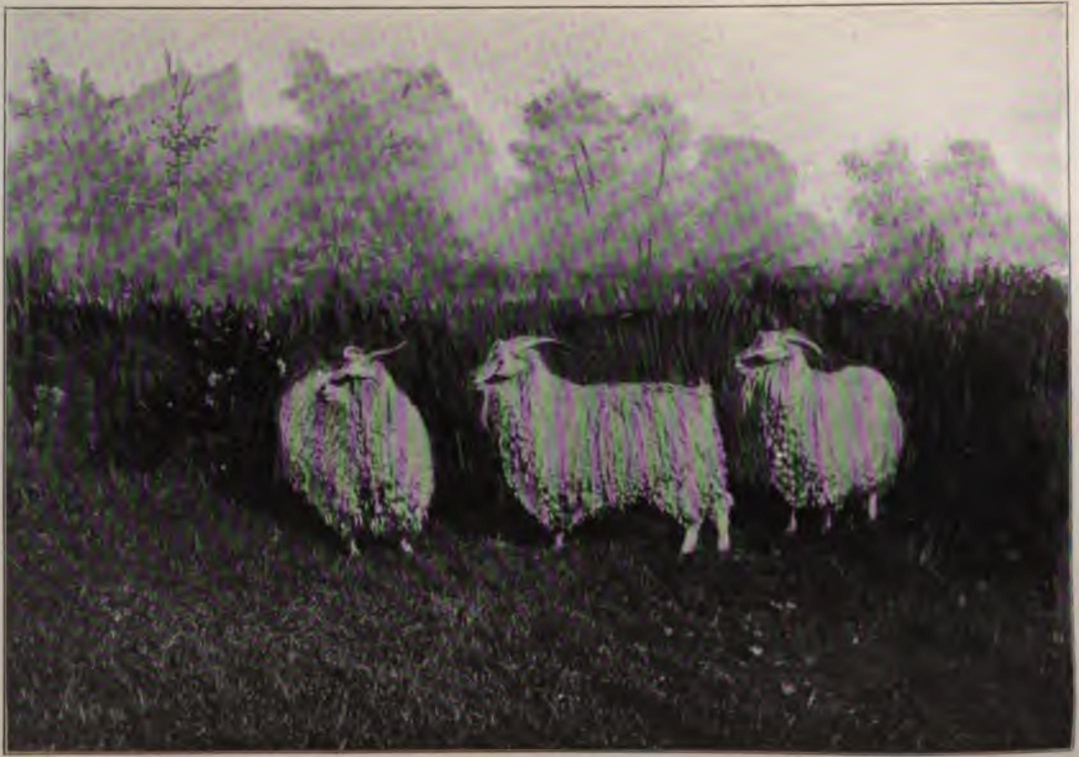
It is safe to say that there is an overwhelming sentiment against the practice. This will be apparent after one has read the replies which are published herewith to the question, "What is your opinion of in-and-in breeding?" It is quite generally agreed, however, that this practice will give a fleece of finest fiber, having a beautiful luster and little oil, but the weight will not be so great. Those who favor the practice contend that the quality more than offsets the quantity. The animals resulting from this practice are not so large and strong as those which are not related. The fact must not be overlooked, however, that Mr. John S. Harris, of Oakley, Idaho, has followed in-and-in breeding continuously and with evident success, and, too, they are kept in a climate where the temperature in winter is sometimes far below zero. But Mr. Harris is a gentleman who understands the art of breeding; if all goat raisers knew so well the principles of breeding as he does there might not be so many to condemn the practice. However, they have learned much by experience, and it can not be contended that they are wrong in advising generally against the practice. Col. Richard Peters, the most successful breeder of his day, said that half-blood does can with best results be bred to their own sires, provided the sires have proved themselves to be good breeders.

If inbreeding of closely related animals is meant, it should not be resorted to with live stock of any kind except when individuals which show very desirable points are at the same time of very strong constitution and of good size. But, then, I would never hesitate to breed even parents to children. Strict observance of this rule I consider doubly necessary with Angoras, which are naturally tender and delicate, and it should be risked only when chances are very strong that the gain of fleece or shape will fully compensate for the inevitable loss of size and constitution. I believe that in a very few years that the value of the annual product of meat (from her offspring) of a doe will surpass that of her mohair. Besides, the more constitution is gained, the more apt are we to return to the original prolificness of the goat tribe, which has been entirely lost with Angoras in consequence of inbreeding. With the third free generation usually, but always with the fourth, bad effects of mating relations would not be felt any more.—*G. A. Hoerle, Ridgewood, N. J.*

The opinion of our leading authorities, such as Professor Sanford and others, is that in-and-in breeding is the most successful way, and many cases are cited where this has been carried on for over thirty years. We have some breeders here who have been inbreeding for the past eight years, and the result, when the greatest of care is exercised, is that we have produced some very fine stock, as fine, I believe, as any that has been raised in this country. This in-and-in breeding is a very particular piece of work and should not be attempted by anyone unless he intends to give it his undivided attention. I believe it is the most successful way to breed for a fine fiber. The greatest trouble seems to be in the size of the animal, but if careful attention is paid to the work there is no excuse for losing size. We have demonstrated beyond all doubt that in-and-in breeding produces a finer wool, a longer wool, and a better wool; so if one desires to breed for fine wool he will have to follow in-and-in breeding.—*E. H. Jobson, Lake Valley, N. Mex.*

ANGORA GOATS IN ROCKY PASTURE.

(Photograph furnished by H. T. Fuchs, Tiger Mills, Tex.)



ANGORA GOATS IN PASTURE.

(Photograph furnished by C. P. Bailey & Sons Company, San Jose, Cal.)

I think that to get a perfect goat one should inbreed to the finest buck or ewe obtainable; but don't keep it up too long, as the goat will be small and weakly.—*Josephus R. Barnette, Globe, Ariz.*

We think it should be avoided so far as possible, as it reduces the size and general stamina of the goat.—*W. G. Hughes & Co., Hastings, Tex.*

It will ruin a flock of goats the same as any other animal.—*R. C. Johnston, Lawrence, Kans.*

If done properly, closely watching defects, it is all right.—*J. R. Standley, Platteville, Iowa.*

Would not practice it if I could help it. We want goats with long, fine mohair, but at the same time we must look to the build of the goat.—*Q. M. Beck, Beargrove, Iowa.*

Am opposed to it on general principles. Would prefer it, however, to a moderate extent, to using inferior sires.—*J. Murray Hoag, Maquoketa, Iowa.*

I don't like inbreeding, as it weakens the goat. They don't have the ambition that fresh blood imparts to them.—*G. M. Scott, Malta, Idaho.*

They will be small and not strong, and harder to raise; will not shear so much, and more difficult to keep in flesh.—*W. W. Smith, Eola, Oreg.*

My stock are all inbred (600 does), but they are very small and tender. Would not advise it.—*V. Cladek, Larwood, Oreg.*

Once will do, provided you have an extra buck. After that you weaken the constitution of your goat.—*U. S. Grant, Dallas, Oreg.*

It can be practiced to advantage in producing a fine fleece, but if indulged too much will weaken the constitution and the goat will be small.—*Abe Blackburn, North Yamhill, Oreg.*

I believe, by careful selection of bucks, they can be improved, but I prefer crossing with new blood when it is just as good.—*Oscar Tom, Angora, Oreg.*

It shatters the constitution without a relative gain in weight of fleece. Fine mohair and light fleeces are all right, but I don't practice inbreeding. It produces such a goat as the practical man does not want.—*George A. Houck, Eugene, Oreg.*

We do not approve of it on general principles, but have not experimented much along this line.—*C. P. Bailey, San Jose, Cal.*

Under certain circumstances inbreeding for points in thoroughbreds is necessary, but it will degenerate a grade herd very quickly.—*Conklin Brothers, Newville, Cal.*

I do not like it and have never practiced it. I have seen it practiced, and the goats lack constitution.—*Henry Fink, Leon Springs, Tex.*

It brings the mohair to the greatest fineness if properly managed, but it should not be kept up too long.—*H. T. Fuchs, Tiger Mills, Tex.*

It is beneficial in the matter of improving the fleece, but a decided injury to the constitution and size of the animal.—*Col. W. L. Black, Fort McKavett, Tex.*

I used one billy five years. He was the best goat that I ever saw, shearing 10½ pounds of clean mohair annually.—*G. B. Miller, Gervais, Oreg.*

Inbreeding makes the fleece thinner and shorter and the constitution of the goat weaker.—*F. O. Landrum, Laguna, Tex.*

MANAGEMENT OF THE BUCK.

Bucks usually come in heat about the middle of July and continue so about six months; does, however, do not usually come in heat until the latter part of August or the 1st of September. As the period of gestation in goats is from 147 to 155 days (or about five months), care must be taken in mating the animals in order to have the kids dropped in proper season, which will vary somewhat with the locality. The kids should not come before the warm days of spring, or when vegetation begins to put out vigorously. Therefore the buck should be put to service from November 1 to December 1, so that the kids will come about the 1st of April or May. The only objection to earlier kidding is the extra care required to preserve the life of the kids, for they are exceedingly delicate for a few days, as has been stated before, and even a little cold at this season will probably prove fatal.

A buck, like any other domestic animal, should be in the best possible condition when put to service. He should be well fed with grain for a few weeks before this time, and the feeding should be kept up until a few weeks after his service is ended.

As to the number of does which a buck may serve, there is a great diversity of opinion. The greater number of goat raisers, however, think forty or fifty is all that may be served with good results. Col. Richard Peters wrote that he had obtained the best results with two hundred breeding does by turning in with them ten selected bucks. His object was to have the kids come as nearly at one time as possible, thus shortening the period of careful watching. Referring to Colonel Peters's practice, Dr. J. R. Standley says he regards it a great success, and will adopt it in the future. He says, further: "I have tried the one-service system, also turning in bucks at night, removing them during the day, and other plans, but decidedly prefer Colonel Peters's plan."

Where there are very large flocks it is not always desirable that the kids should all come at one time. If they are dropped at intervals for a month one attendant may thus be enabled to look after a large number, whereas if all come about the same time one attendant could not do the work, and assistants who may be strangers to the flock would be necessary. (It is not well to have many strangers with these goats at any time, and certainly not at kidding time.) Upon this point Mr. G. A. Hoerle has written out a plan, given below, which is quite generally followed where there are large flocks:

> A great difference of opinion exists as to how many ewes an Angora buck should be allowed to serve. This depends both upon the bucks and the condition they are in, as well as upon the length of the period during which you want the kids to drop. In a small herd, and where ample conveniences for kidding are furnished, so that good care can be taken of all the kids at once if necessary, one buck should serve from thirty to fifty (as above said, according to the animal); but should the flock be large, and owing to the uncertainty of the climate or the insufficient help or shelter

it should be desirable to have the kids drop gradually, say during a period of two months, especially when winter kidding is made a practice, from 75 to 150 ewes for each buck is not too much—again, according to animal and time. They should not run with the entire flock at once, but begin with say one-third to one-fourth of it, according to circumstances. The next similar fraction should be put in the breeding flock from two to five days later, and so on until gradually the entire flock is with the bucks. In this way a full crop of kids would be insured and at the same time the bucks prevented from doing excessive service.

The handling of "riginals" (ridgels) should have a word here. If the one testicle which descends is removed, the riginal will not get kids, but he will bother the does. If the descended testicle is not removed, he will breed without difficulty. He should be killed as soon as practicable.

NUMBER OF KIDS.

Thoroughbred Angora goats do not often drop more than one kid at a time, while the common goats nearly always drop two. There are many twins with the first cross, but the number diminishes as the crosses become higher. It is stated that the purebred Angoras never dropped but one at a time, and that the presence of twins in a flock is evidence of a base origin of the goats. The latter statement is disputed by some, who believe that the purebred Angora (having no trace whatever of base blood) will drop twins as regularly as the common goat.

SIZE OF FLOCKS.

All goat raisers agree that Angoras can not stand crowding together; and the higher the grade of the goats the more susceptible are they to injury from crowding. But to state just how many should be kept in a flock is difficult, as the number depends upon the character of their restraint. Where they have the range at day and large yards at night, the flocks may be very large, but where they have pastures and small pens at night the flock must not be large.

Writers upon the Angora industry have placed so much stress upon the point of overcrowding that the Bureau sought for information upon the question "What should be the size of Angora flocks?" Each correspondent replied with his own experience, and the conclusion is reached from the replies that they may be handled in flocks about as sheep are handled, the number depending wholly upon the capacity of the range or pasture, as the numbers reported for flocks are from 100 to 2,500. However, the danger from crowding is not disputed by any of the correspondents, and many of them mention it specifically. This phase of the matter must be carefully considered in connection with the question of housing and shelter. These must be ample to afford abundance of room and fresh air.

It is stated by some that goats running in small flocks shear more than the same number running in large flocks.

DEHORNING.

Dehorning the goats has received very little consideration, and it is probable that Mr. Q. M. Beck, of Beargrove, Iowa, is the only goat raiser who is now practicing it. Many other breeders report that they do not dehorn but believe it practicable, while a very few express opposition to the practice. Mr. Beck writes as follows: "I dehorned forty-five head last fall (1889) and found it a success, as it stops a great deal of bunting, which is liable to cause abortion, saves shed room, saves broken legs, and will save many kids." These same reasons have brought the dehorning of cattle in quite general favor among feeders, and it is probable that as the Angora goat industry grows into a large industry the practice of relieving the goats of their uncivilized weapons of warfare will be generally adopted.

Mr. Beck dehorns in the fall after all flies are gone.

A different view of the question of dehorning is taken by C. P. Bailey & Sons Co., who dehorned 250 head which were in a band by themselves. They bunted as much or more than before the horns were removed. "Goats always butt each other, but we have never seen any ill effects resulting, except occasionally a leg being broken from being caught between the horns. It deprives them of their only means of defense, and we consider it unnecessary and objectionable."

SHEARING AND SHEDDING.

SHEARING ONCE OR TWICE A YEAR.

In Texas, New Mexico, Arizona, and sometimes in California shearing is done twice a year—in the months of March or April and in September or October. The reasons are that, owing to the warm climate, the fleece will often shed in the fall if not clipped. Mr. H. T. Fuchs, of Tiger Mills, Tex., says: "I find it quite necessary to shear twice a year, as they suffer too much from heat in the summer and autumn and even during the warm days in winter if they are not sheared about the middle of September, and in the springtime as soon as they begin to shed their long silky hair." There are instances in these localities where goats carry their fleece through the year, but all breeders, except in some parts of California, report the practice of shearing twice a year. In the other parts of the country shearing is done but once a year, and that in the months of March or April. The rule for shearing time does not depend so much upon the calendar as upon the condition of the fleece. It should not be delayed until the fiber begins to shed, as then the oil will begin to go back into the body of the animal, the mohair thus losing its life and luster.

As to the relative values of the semiannual and annual fleeces, there does not seem to be much difference of opinion. The semiannual fiber is shorter and therefore less desirable for fabricating, and the price is not so high as for that of the annual fleece. It is generally agreed that the two shearings combined weigh a little more than the annual shearing, but probably the increase does not average more than a quarter of a pound. However, some who have practiced it report that the gain is not equal to the cost of the second shearing, and that shearing twice is done from necessity rather than from the standpoint of profit.

USE OF CLIPPING MACHINES.

The use of clipping machines, although largely employed among large sheep raisers, has not yet come into general use among goat raisers. Those who have used them indorse them, and they will no doubt soon come into general use. They are more rapid than hand work, and the results are more satisfactory. The cutting of the skin is easily avoided in reasonably careful hands, while it requires extreme care with hand shears to prevent cutting. Mr. H. I. Kimball, of New Mexico, says of the use of the machines: "I sheared them [the goats] myself faster than the best hand shearer I ever saw, and I got a better price for my mohair." Another gentleman says: "I will say that the clipping machine for sheep will work well on goats in every respect. I have sheared ten goats in one hour and done up the fleeces."

Of course, the goat raiser will consider the relative cost of shearing with machines and by hand before he will purchase a machine. The decision will probably depend upon the number. The cost of hand shearing is about 4 cents a head. In the Southwest there are Mexicans who follow the profession of shearing sheep and goats; these usually receive 2 cents a head with their board. Many of them will shear 85 or 90 a day, the average of all being about 60. Any man who can shear sheep can shear goats. If shearing is done by hand, a short-bladed shear should be used in order to avoid cutting the hair twice.

Another objection to hand shearing is that there is often double cutting of the hair. The result is a shortening of the fiber and an increased amount of noilage.

If the animals are well cared for during the year, their fleece will not require washing before clipping. One writer of experience says that "the natural habits of the Angora goats are clean enough to enable spinning before washing, at least for some purposes." Any dirt that may adhere to the fleece should carefully be picked off after shearing.

CARE OF THE FLEECE AFTER SHEARING.

The operation of shearing should be done in a building free from straw and dirt, which might adhere to the fleece after it drops from the goat. It should then be rolled up, inside out, and packed in the sack without being tied in any way. This is the manner in which the mills desire to receive it. The practice of tying the fleece with almost any kind of twine that may be at hand obtains very largely among goat raisers, but the wishes of the mill operators are already receiving proper attention. The reasons why the mill operators do not desire fleeces tied are very forcibly stated by one of them (George B. Goodall), as follows:

> I want to mention another evil which should be corrected, and that is the use of twine or string around the fleeces. Vegetable fibers will not take dyes used for animal fibers, and in cutting these strings by the sorters more or less of the vegetable fibers get into the mohair and have to be carefully burled out from the face of the finished goods, which adds to the cost of each piece. A mohair fleece should be simply rolled up without twine of any description. You never see it on Turkey or Cape mohair.

If mohair producers insist on the use of twine, the quality should be hard and smooth, so that no particle of it will adhere to the mohair when it is cut away.

As to assorting the fleeces with reference to the quality of the mohair, no common practice is followed by producers. Some assort them at shearing time and pack in separate sacks, while others pack all sorts together. If the producer is a good judge of mohair, the former method will prove more satisfactory. When all are packed together indiscriminately, the poorer grades of fiber tend to reduce the average price of the whole lot. However, many prefer to pack thus indiscriminately, leaving the work and judgment of assorting to the commission merchant. Most of the mills purchase from the commission merchant because of his skill in assorting.

There are appended some opinions on this subject of Mr. Hoerle which are worthy of consideration:

> Before folding up the fleeces they should be carefully assorted, if this is possible, in the following way:
>
> A. Combing hair, or all hair over 4½ inches in length:
>   1. The very finest, as fine as fine kid hair.
>   2. Next finest, or average run of good doe fleeces.
>   3. General run of fair doe and good wether fleeces.
>   4. Coarse fleeces.
>
> B. Carding hair, or less than 4½ inches long:
>   1. Fineness of class 1 above.
>   2. Fineness of classes 2 and 3.
>   3. Coarse fleeces.
>
> At shearing time fleeces of similar quality and length should be packed together, and special care should be taken not to allow tag ends and burrs to remain in the fleeces. The latter should be carefully picked out before the shearing begins and the former pulled off before packing and placed in a special bag, and marked separately. It is much more profitable to have small lots of low-priced short ends and tags and to pull out with the burrs a few strands of the mohair than to have an entire clip depreciated by careless shearing and packing.

shed at all. The correspondence of the Bureau shows that practically all of the goats in this country shed their fleece, either annually in the colder localities or semiannually in the warmer climates. The question submitted by the Bureau was, "Do thoroughbreds shed if not sheared?" There were many positive affirmative replies received and several modified answers. Among the latter are reasons why some goats do not shed. It will be of interest, and probably of some profit, to consider some of these replies in any effort toward reaching a conclusion regarding this question, and they are given herewith:

They will all shed in the spring, when warm weather begins, but the higher they are bred up the longer they will go without shedding.—*H. T. Fuchs, Tiger Mills, Tex.*

Some will shed. I regard the nonshedding Angora as a distinct type, and all the various crosses will retain their fleece.—*William L. Black, Fort McKavett, Tex.*

I have goats that never shed, but they are fed for show purposes during winter. If ordinary care is given, they shed.—*Abe Blackburn, North Yamhill, Oreg.*

I have had goats that did not shed at 1 year old, but did at 2. I think feeding conditions are responsible for such cases.—*George A. Houck, Eugene, Oreg.*

Goats of second cross sometimes do not shed. Depends on condition of goat.—*U. S. Grant, Dallas, Oreg.*

Many thoroughbreds will shed, and we have grades that do not. Much depends upon the physical condition of the goat. If it is in poor flesh and fattens rapidly in spring, it is very apt to commence shedding, just as many sheep do under similar conditions.—*W. G. Hughes & Co., Hastings, Tex.*

Though most breeders in this country disagree with me in my nonshedding views, I am supported by the Cape breeders. One of them, Mr. R. C. Holmes, is very decided in his expressions. He says: "With regard to well-bred goats shedding their hair, I quite agree with you that they should not do so. In fact, among my goats it is an exceptional thing to see a goat shed, and even the ewes at kidding time do not shed. At this period some few may do so, but very few indeed, and a ram should never shed." This does not lack in clearness. Angoras will sometimes lose their hair from disease, a change of climate, or a change of weather even, or a sudden change from a continued dry food to green food, etc. This may appear at any time of the year, regardless of the season, and has absolutely nothing to do with the yearly shedding of low-bred goats. No yearly shedder should be classed as a thoroughbred."—*G. A. Hoerle, Ridgewood, N. J.*

Under certain conditions they will shed, but not if the goats are in good health.—*E. A. Hinkle, Roseburg, Oreg.*

I have about fifty head of nannies that do not shed, but most goats shed if not sheared.—*G. M. Scott, Malta, Idaho.*

DISEASES AND OTHER ENEMIES.

Goats are less subject to disease than sheep; but these species are so closely allied that treatment in cases of disease is the same for both. Several accounts have been published in the agricultural press of goats in the Southwest being affected with stomach worms and with grub in the head, the same as sheep are affected in the same localities. There are occasionally outbreaks of disease in certain localities, but these are due to local causes, and generally have not been difficult to overcome.

The treatment recommended for the screw worm is as follows: Add to any one of the carbolic sheep dips 10 per cent of chloroform. Apply this mixture, after thoroughly cleaning the wound, with a wad of cotton. The chloroform immediately destroys the larvæ and the carbolic dip prevents the further blowing of the wound.

The stomach worm (*Strongylus contortus*) is the same form as found in sheep, cattle, and deer. The treatment in all cases is the same as for sheep.

Goats have at least three kinds of scab parasites peculiar to their species, but apparently only two kinds of scab develop. Psoroptic scab of sheep does not develop disease upon them, though it can undoubtedly sustain life for a while.

Tapeworms of the genus Moniezia are found in goats. In the intestines are also found five round worms, namely, *Strongylus filicollis*, *Œsophagostoma venulosum*, *Sclerostoma hypostomum*, *Uncinaria cernua*, and *Trichocephalus affinis*.

Verminous pneumonia of sheep also occurs in goats.

Tuberculosis is so rare in goats that every case is recorded, the number of such cases being less than a dozen. It may be said, therefore, that they are practically immune from this widespread and insidious disease.

Goats are apt to have foot rot, but a cure is easily effected by the use of sulphate of copper (blue vitriol). It is usually applied by driving the goats through a trough containing a solution of strong blue vitriol. The solution should be about an inch in depth. Oscar Tom, a breeder of much experience, says:

> Butter of antimony applied with a stiff feather will cure it, or mix 1 ounce of sulphuric acid with 2 ounces of vinegar and apply as above. Go over the whole band. Generally one application cures if well done. Change the range at the same time if you can.

Angoras are frequently affected with lice, which cause a loss of mohair from the rubbing and scratching of the goat. The lice may be exterminated by dipping. The common sheep dips are generally used for the purpose. It is a common practice to dip the goats once a year, and some advise dipping twice a year—in spring just after shearing and again in the fall.

One of the principal enemies of the Angoras is the wolf. The best guard against wolves is a good wire fence. Sometimes the wolves dig under the fence, and then it becomes necessary to trap them. This is practiced by Mr. H. T. Fuchs, who says:

> Three steel traps are fastened to each other, but to nothing else, and catch the wolves. If the trap is made fast the wolf will break loose, but the weight of three traps fastened together simply tires the wolf out, and it rarely drags them more than 200 or 300 yards.

In many localities the wildcats are especially troublesome. Their prey is the kids.

ANGORA GOATS IN PASTURE.

(Photograph furnished by H. T. Fuchs, Tiger Mills, Tex.)

ANGORA GOATS IN YARD.

(Photograph furnished by H. T. Fuchs, Tiger Mills, Tex.)

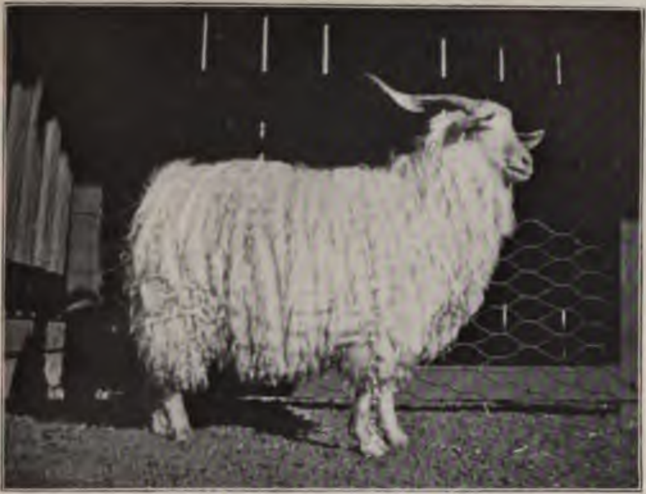


FIG. 1.—A YEARLING ANGORA GOAT.
Photograph furnished by W. G. Hughes & Co.)

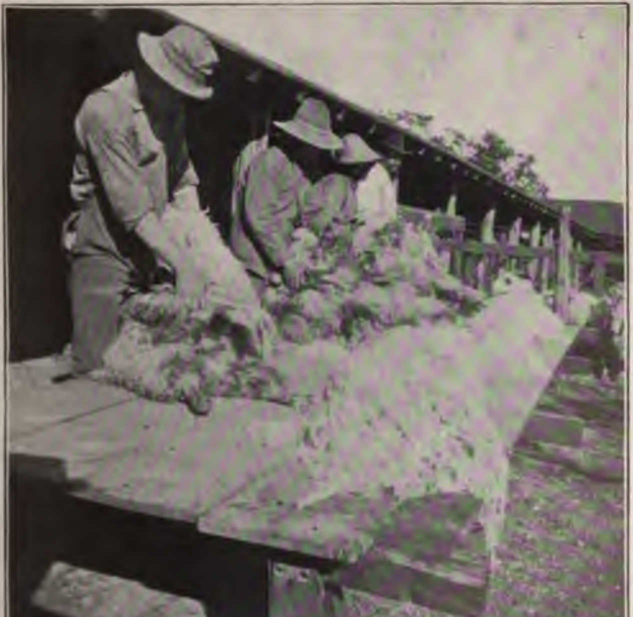


FIG. 2.—SHEARING ANGORA GOATS.
(Photograph furnished by W. G. Hughes & Co.)

The fact that many plants which are poisonous to sheep and cattle may be eaten with impunity by goats is frequently referred to by writers for the press. It is true, however, that goats sometimes die from eating poisonous plants, especially in the mountainous districts of the Carolinas, as the Bureau is informed through correspondence. The so-called "ground ivy" is specially referred to. It is believed that goats will not eat poisonous plants to an injurious extent unless driven by hunger to do so.

NUMBER OF ANGORA GOATS.

IN THE UNITED STATES.

The census reports previous to the year 1900 have not given the number of goats in the United States; the Twelfth Census, however, will show the number of Angoras, as well as the number of common goats.

Col. William M. Black, of Fort McKavett, Tex., in 1898 estimated the total number (including all grades) to be 247,775, located in States and Territories as follows:

Texas	75,000	Tennessee	250
California	59,000	South Carolina	200
New Mexico	52,000	North Carolina	200
Oregon[1]	15,000	Colorado	200
Nevada	11,500	Mississippi	150
Idaho	8,000	Louisiana	150
Wyoming	7,000	Connecticut	150
Arizona	5,700	Alabama	75
Missouri	5,200	Arkansas	75
Utah	2,000	Florida	75
Montana	1,500	Iowa	75
Kansas	1,200	Virginia	75
Indian Territory	900	Nebraska	50
Georgia	750	Washington	50
Kentucky	500	West Virginia	50
Pennsylvania	400		
Illinois	300	Total	247,775

About a year later Mr. William R. Payne, of New York, estimated the total number at 300,000. If these estimates are anywhere nearly correct, the present number must be very much greater, probably as many as 400,000.

IN CAPE OF GOOD HOPE.

Mr. W. Hammond Tooke, in the Agricultural Journal of the Cape of Good Hope for May 25, 1899, gives the number of Angora goats for 1893–1898 as follows:

1892–93	2,811,206	1895–96	2,546,981
1893–94	2,619,708	1896–97	2,685,080
1894–95	2,611,082	1897–98	2,982,811

---

[1] A home authority estimates the Angoras in the State at 65,000.

IN ANGORA VILAYET.

Schreiner estimated that the number of Angoras in the vilayet of Angora in 1894, was 1,230,000. He also directs attention to the fact that the mohair area of Turkey in Asia extends beyond that province.

PRODUCTION OF MOHAIR.

The quantity of mohair of all grades produced in the United States has been a matter of guess, and the estimates have been wide apart. Assuming that practically the entire domestic product goes to the mills for fabrication, the Bureau addressed to the mills that consume mohair a request to be furnished a statement of the amount of domestic and imported mohair used annually. It is believed, therefore, that these statistics which are given herewith represent the total product of the United States for the year 1899:

Consumption of mohair in the United States in 1899.

Mills.	Domestic.	Imported.
	Pounds.	*Pounds.*
Sanford Mills and the Goodall Worsted Co., Sanford, Me	840,000	460,000
Tingue Manufacturing Co., Seymour, Conn		15,000
Atlantic Mills, Providence, R. I		[1] 296,465
Gold Medal Braid Co., Attleboro Falls, Mass		1,000
Massachusetts Mohair Plush Co., Lowell, Mass	200,000	300,000
Westfield Braid Co., Westfield, Mass		[1] 8,000
Cranston Worsted Mills, Bristol, R. I	32,000	39,000
Queensbury Mills, Worcester, Mass	5,000	
Total	1,077,000	1,119,465

[1] Not certain it was imported mohair, but assumed to be.

The customs figures of the Cape of Good Hope, as quoted by W. Hammond Tooke, show that mohair was produced there for various years previous to 1898 in the following amounts:

1877	1,433,774	1894	10,003,173
1882	3,766,657	1895	11,090,449
1887	7,153,730	1896	10,001,028
1892	10,516,837	1897	12,583,601
1893	9,457,278		

According to Commercial Relations for 1899 the entire product of the Cape of Good Hope for 1897 was exported, as well as that for 1898, which is given as 10,876,014 pounds.

It has not been possible to obtain figures showing the production of Turkey for any specific year or for a series of years, but the average valorem. The duty on dressed and finished goatskins is 20 per cent ad valorem; on skins for morocco, tanned but unfinished, 10 per cent ad valorem. These rates are subject to increase under certain conditions of shipments.

REGISTRATION ASSOCIATIONS.

The Bailey Angora Goat Registration Association, of San Jose, Cal., has kept a private register for many years, and became a general record association in 1898.

There are two registration associations in the United States which were organized during the year 1900—the American Angora Goat Breeders' Association, with headquarters at Kansas City, Mo., and the National Angora Record Association, with headquarters at Salem, Oreg.

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The principal works consulted in the preparation of this paper are as follows:

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Besides these access has been had to hundreds of articles in the agricultural press. Special mention should be made of the Oregon Agriculturist, Portland, Oreg., the Pacific Rural Press, San Francisco, Cal., and the American Sheep Breeder, Chicago, Ill. The two latter devote a page regularly to the goat industry.

The library force of the Bureau of Animal Industry have prepared a bibliography of goat literature, but the titles are so numerous that it has been deemed advisable to hold them for separate publication rather than to append them here.

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U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY.
D. E. SALMON, D. V. M., Chief.

LEGISLATION

WITH REFERENCE TO

BOVINE TUBERCULOSIS,

BEING

A DIGEST OF THE LAWS NOW IN FORCE AND A TRANSCRIPT OF THE LAWS, RULES AND REGULATIONS, AND PROCLAMATIONS FOR THE SEVERAL STATES AND TERRITORIES.

BY

D. E. SALMON, D. V. M.,
Chief of Bureau of Animal Industry.

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
Washington, D. C., February 9, 1901.

SIR: I have the honor to transmit herewith a compilation of the laws and rules and regulations of the several States and Territories, so far as they relate to bovine tuberculosis, and recommend that it be published as Bulletin No. 28 of this Bureau. This information is designed to supply the needs of breeders and shippers of cattle.

Respectfully,

D. E. SALMON,
Chief of Bureau.

Hon. JAMES WILSON,
Secretary of Agriculture.

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LEGISLATION RELATIVE TO TUBERCULOSIS.

ALABAMA.

Alabama has an old law relative to infectious and contagious diseases which might be construed so as to include tuberculosis of cattle; however, nothing has been done with reference to that disease under this or any other law.

LAW.

AN ACT for the prevention and suppression of infectious and contagious diseases of horses and other animals. (Approved February 28, 1887.)

SECTION 1. *Be it enacted by the General Assembly of Alabama,* That it shall be the duty of any person, who is the owner or possessor of a horse, mule, or other animal having the glanders, or other fatal contagious or infectious disease, to keep such diseased animal away and removed from any public or other place where horses, mules, or other animals are usually kept in said counties, and also to keep such diseased animals at a distance from any common rendezvous for animals therein, whether such rendezvous or place of resort be maintained for public or private use and conveniences; and any person refusing or wilfully neglecting to obey this provision of law, by bringing such diseased horse, mule, or other animal, or causing the same to be brought, to any rendezvous of animals or other place where the same shall be usually kept, shall be deemed guilty of a misdemeanor, and may be indicted therefor; and upon conviction thereof by or before any court of this State competent at this time to try and punish misdemeanors committed in said counties, shall be fined not exceeding $50, nor less than $5, for any violation of this law: *Provided,* That the prosecution and conviction of any person under this statute shall not be a bar to an action for civil damages against said person for loss or injury incurred by reason of the violation thereof.

ARIZONA.

Arizona has no special law relative to bovine tuberculosis, but the disease is included in the general law of March 1, 1897.

The work against contagious diseases of animals in Arizona is done by the Live Stock Sanitary Board, consisting of three persons appointed by the Governor. The Governor also appoints a Territorial Veterinary Surgeon who operates under the Sanitary Board.

The duty of the board is "to protect the health of the domestic animals of the Territory from contagious and infectious diseases of a malignant character, and for this purpose it is hereby authorized and empowered to establish, maintain, and enforce such quarantine, sanitary, and other regulations, including methods of disinfecting railroad cars, as it may deem necessary."

The Territorial Veterinarian investigates reports of the presence of contagious or infectious diseases, and, if he finds that they do exist, establishes a temporary quarantine and reports the results of his investigations to the board, which establishes a permanent quarantine and prescribes rules and regulations for enforcing it. The proclamation of this quarantine is made by the Governor if the board so recommends.

The veterinarian, with the consent of the board, may slaughter diseased animals after certain conditions shall have been complied with. The slaughter by the veterinarian of animals which have been exposed and do not show disease can be done only with the written consent of the owner and when the order for the same is signed by another veterinarian. There appears to be no provision for indemnity for animals slaughtered.

It is made a misdemeanor to sell, drive, ship, trade, or give away any animals affected with or exposed to any contagious or infectious disease.

Whenever the Live Stock Sanitary Board has reason to believe that such diseases exist in other States or Territories, it reports the fact to the Governor, who issues a proclamation of quarantine against those districts, prohibiting the importation from them of any live stock of the kind diseased unless accompanied by a certificate of health. An exception is made of cattle in transit through the Territory by railroad and not unloaded.

It is also made a misdemeanor to bring into the Territory any animal which is affected with or has been exposed to any contagious or infectious disease.

LAW.

AN ACT to codify and revise the laws with reference to live stock.

Be it enacted by the Legislative Assembly of the Territory of Arizona:

SECTION 1. Three commissioners identified with the live stock interests of the Territory of Arizona shall be appointed by the Governor, with the advice and consent of the legislative council, who shall constitute the Live Stock Sanitary Board of the Territory of Arizona. Before entering upon the duties of his office each commissioner shall take and subscribe the oath of office according to law, and file the same with the Secretary of the Territory; and each commissioner before entering upon the performance of his duties shall execute a bond, to be approved by the Governor, in the sum of $2,000, conditioned that he will faithfully perform the duties of his office, and file the same with the Secretary of the Territory. The term of office of the first commissioner named by the Governor shall be for three years from the 1st day of April, 1897; the second one named shall be for two years, and the third one named shall be for one year from said 1st day of April, 1897, and the successors of each shall be appointed for the term of three years thereafter. The Governor shall have the power to fill vacancies in said board. Said board shall elect one of their number chairman. The board shall keep a full and complete record of their proceedings and make such report to the Governor as may from time to time be required, and a biennial report to the legislative assembly. The members of the board appointed by the Governor as hereinbefore provided shall receive $5 per day for the time by them necessarily employed in discharging the duties required by this act: *Provided, however*, That in no one year shall the board be in session more than sixty days, except upon call of the Governor, and each member of the board shall receive 10 cents for each and every mile actually traveled, which per diem and mileage shall be paid on the warrant of the Auditor, to be issued on the filing in the Auditor's office of an itemized account thereof, properly certified thereto by such member, duly countersigned by the Secretary, with the seal of the board and approval of its chairman.

SEC. 2. The Governor shall nominate, and by and with the advice and consent of the legislative council appoint, a skilled veterinary surgeon for the Territory of Arizona, who at the date of such appointment shall be a graduate in good standing of a recognized college of veterinary surgeons, and who shall hold his office for the term of two years, unless sooner removed by the board; the salary of said veterinary surgeon shall be the sum of $1,200 per annum and 10 cents per mile for each mile actually and necessarily traveled in the discharge of his duties. Before entering upon the discharge of his duties the Territorial Veterinarian shall take and subscribe an oath to faithfully perform the duties of his said office and shall execute a bond to the Territory of Arizona in the sum of $5,000, with good and sufficient sureties, conditioned for the faithful performance of the duties of his office, which bond and sureties thereto shall be approved by the Governor, and said bond, together with the oath of office, shall be deposited in the office of the Secretary of the Territory.

SEC. 3. It shall be the duty of any owner or person in charge of any domestic animal or animals who discovers, suspects, or has reason to believe that any of his domestic animals, or domestic animals in his charge, are affected with any infectious or contagious disease to immediately notify such fact, belief, or suspicion to the board or any member of it or to the Territorial Veterinarian; and it shall be the duty of any person who discovers the existence of any contagious or infectious disease among the domestic animals of another to report the same to the said board or Territorial Veterinarian, and any attempt to conceal the existence of such disease or to wilfully or maliciously obstruct or resist the said board or the Territorial Veterinarian in the discharge of their duties as herein set forth, shall be deemed a misdemeanor.

SEC. 4. It shall be the duty of the board provided for in the first section of this act to protect the health of the domestic animals of the Territory from the contagious and infectious disease of a malignant character, and for this purpose it is hereby authorized and empowered to establish, maintain, and enforce such quarantine, sanitary, and other regulations, including methods of disinfecting railroad cars, as it may deem necessary. It shall be the duty of any member of said board, upon receipt by him of reliable information of the existence among the domestic animals of the Territory of any malignant disease, to immediately notify the Territorial Veterinarian, who shall go at once to the place where any such disease is alleged to exist and make a careful examination of the animals believed to be affected with any such disease, and ascertain, if possible, what, if any, disease exists among the live stock reported to be affected and whether the same is contagious or infectious or not; and if said disease is found to be of a malignant, contagious, or infectious character, he shall direct a temporary quarantine and sanitary regulations necessary to prevent the spread of any such disease and report forthwith his findings and actions to the chairman of the board.

SEC. 5. Upon the receipt by the chairman of the board of the report of the Territorial Veterinarian provided for in Section 4 of this act, he shall immediately, if the exigencies of the case require it, convene the board at the most convenient place: and if upon consideration of the report of the veterinarian the board shall be satisfied that any contagious or infectious disease exist which seriously affects the health of domestic animals, they shall, after ascertaining and determining the extent of premises or grounds infected, authorize the veterinarian to establish the quarantine, sanitary, and police regulations necessary to circumscribe and exterminate such disease; and no domestic animal liable to become infected with the disease or capable of communicating the same shall be permitted to leave the district, premises, or grounds so quarantined except by the authority of the veterinarian. The said board shall prescribe such rules and regulations as will enable the veterinarian to perfectly isolate the diseased and exposed animals from all other domestic animals which are susceptible of becoming infected with disease; they shall also, from time to time, prescribe and enforce such directions, rules, and regulations as to separating, mode of handling, treating, feeding, and caring for such infected or diseased and exposed animals as it shall deem necessary to prevent the two classes of animals from coming in contact with each other; and the said board or any of the members thereof, or said veterinarian, are hereby authorized and empowered to enter upon any grounds or premises to carry out the provisions of this act.

SEC. 6. When the said board shall have determined the quarantine and other regulations necessary to prevent the spread among domestic animals of any malignant, contagious, or infectious disease found to exist among the live stock of the Territory, and given the orders as hereinbefore provided prescribing quarantine and other regulations, it shall notify the Governor thereof, who shall issue his proclamation proclaiming the boundary of such quarantine and the orders, rules, and regulations prescribed by the board, which proclamation may be published by written or printed handbills posted within the boundaries or on the lines of the district, premises, places, or grounds so quarantined, or by being published in the stock papers of the Territory: *Provided*, That if the board decides that it is not necessary, by reason of the limited extent of the district in which such disease exists, that a proclamation should be issued, then none shall be issued, but the board shall give notice as may to it seem best to make the quarantine established effective.

SEC. 7. In any case of epidemic disease where premises have been previously quarantined by the Territorial Veterinarian, as before provided, he is further authorized and empowered, when in his judgment necessary, by and with the consent of the board, to order the slaughter of any or of all diseased animals upon said premises and of all animals that have been exposed to contagion or infection, under the following restrictions: The order for slaughter shall be in writing and shall be made in duplicate, and there shall be a distinct order and a duplicate for each owner of the animal or animals condemned, the original of each order to be filed in the office of the said board and the duplicate given to the said owner. And, further, before slaughtering any animal or animals that have been exposed only and do not show disease the veterinarian shall call in consultation with him two reputable practicing veterinarians or physicians, residents of the Territory, or if this is impracticable, then two reputable and well-known stock owners, residents of the Territory, and shall have the written indorsement upon his orders of at least one of said consulting physicians or stock owners, stating that the said action is necessary, and the consent in writing of the owner or person in charge before such animal or animals shall be slaughtered. It shall be the duty of the Territorial Veterinarian to superintend the slaughtering of such animals as may be condemned, and also the destruction of the carcass, causing the same to be destroyed as cheaply as practicable, which destruction shall be by burning to ashes, and shall include every part of the animal and hide and also excrement and stable bedding or corral litter as far as possible.

SEC. 8. Any person, persons, firm, or corporation who shall have in his possession any domestic animal affected with any contagious or infectious disease, knowing such animal to be so affected, or after having received notice that such animal is so affected, who shall sell, drive, ship, trade, or give away such diseased animal or animals which have been exposed to such infection or contagion, sheep infected with scab upon the range excepted, or who shall move or drive any domestic animal in violation of any direction, rule, regulation, or order establishing and regulating quarantines, shall be deemed guilty of a misdemeanor: *Provided*, That any owner of any domestic animal which has been affected with or exposed to any contagious or infectious disease may dispose of the same after having obtained from the Territorial Veterinarian a bill of health of such animal. It shall be unlawful to kill for butcher purposes any diseased animal, to sell, give away, or use any part of it or its milk, or to remove any part of the skin.

SEC. 9. Whenever the said board shall have good reason to believe that any contagious or infectious disease exists in any other State, Territory, or countries, or that there are conditions that render domestic animals from such districts liable to convey such disease, they shall report the same to the Governor. Thereupon the Governor shall, by proclamation, prohibit the importation of any live stock of the kind diseased into the Territory, unless accompanied with a certificate of health given by a duly authorized State or Territorial Veterinarian, and all such animals arriving in this Territory shall be examined upon arrival by the Territorial Veterinary Surgeon, and if deemed necessary placed in close quarantine until all danger of infection is passed, when they shall be released by order of the Territorial Veterinarian. All expense connected with such examination shall be paid by the owner or owners of such stock.

SEC. 10. It shall be unlawful for any person, persons, firm, or corporation to drive or transport, or cause to be driven or transported, into the Territory of Arizona any live stock from those States, Territories, or countries against which the Governor has proclaimed a quarantine, as hereby provided for in Section 9 of this act: *Provided*, That cattle in transit through the Territory on a railroad, when not unloaded, are not liable to any penalties attached to this act. Otherwise the regulations contained herein shall apply as well to those animals in transit through the Territory as to those resident therein, and the said board, a member thereof, or the Territorial Veterinary Surgeon shall have full authority to examine, whether in yards, or pasture, or stables, or upon the public domain, all animals passing through the Territory or any part of it, and on detection or suspicion of disease to take possession of and treat and dispose of said animals in the same manner as is prescribed for animals resident in the Territory.

SEC. 11. Any person, persons, firm, corporation, owner, or agent who shall knowingly bring into this Territory any domestic animal or animals affected with any contagious or infectious disease, or any animal or animals which have been exposed to any contagious or infectious disease, shall be deemed guilty of a misdemeanor.

SEC. 12. Except as otherwise provided in this act, any person, persons, firm, corporation, owner, or agent who shall violate, disregard, or evade, or attempt to violate, disregard, or evade any of the provisions of this act, or who shall violate, disregard, or evade, or attempt to violate, disregard, or evade any of the rules, regulations, orders, or directions of the said board establishing and governing quarantine, shall be deemed guilty of a misdemeanor; and any person, persons, firm, corporation, owner, or agent who violates any of the provisions of this or of Sections 3, 5, 8, or 11 of this act shall be guilty of a misdemeanor, and upon conviction thereof in any court of competent jurisdiction shall be fined not less than $50 nor more than $300 and shall be liable for any damages that may be sustained by reason of their failure to comply with the provisions of the said sections.

* * * * * * *

REGULATIONS.

Paragraphs 1, 2, and 4 of the regulations issued by the Live Stock Sanitary Board on May 1, 1900, are applicable to tuberculosis as one of the contagious diseases, and they are given herewith:

First. All persons desirous of shipping or driving live stock of any class into or through the Territory of Arizona should secure a certificate of health for the same from the State or county veterinarian where they originate, declaring that said animals are free from all contagious and infectious diseases, and a copy of said health certificate should be sent to the Secretary of the Board or Territorial Veterinarian as early as possible.

Second. It shall be the duty of all transportation companies before entering the Territory with any live stock to inform the Sanitary Board, through its Secretary or Territorial Veterinarian at Phoenix, stating:

(*a*) Name of the shipper. (*b*) Place from which the stock originated. (*c*) Destination of stock. (*d*) Whether or not shipment is accompanied by certificate of health, and, if so, by whom signed.

Should they originate in a healthy district, they will be admitted if accompanied by proper health certificate (according to Rule 1).

Should the stock originate in an infected district which would render them liable to communicate an infectious or contagious disease, the Territorial Veterinarian shall place them in quarantine until all danger of infection is passed.

Fourth. When application is made for the admission of live stock into the Territory of Arizona, not accompanied by proper health certificate, the Territorial Veterinarian may inspect said stock at point of entry into the Territory of Arizona before issuing such permit, and the owner of said stock shall pay the Territorial Veterinarian his legal mileage and per diem while making such inspection.

ARKANSAS.

There is no law relative to bovine tuberculosis in Arkansas.

CALIFORNIA.

California has a general law against contagious or infectious diseases of domestic animals which in a general sense includes tuberculosis. This law provides that the owners of diseased animals shall keep them isolated from other animals of the same species and shall not drive them upon a public highway or onto a range where they will come in contact with other animals of like species not so affected.

LAW.

AN ACT to prevent the spread of contagious or infectious diseases among domestic animals.
(Approved March 23, 1893.)

The people of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. Any person or persons, company, or corporation, owning or having possession or control of any animal affected by any contagious or infectious disease, who shall fail to keep the same within an inclosure, or herd the same in some place where they will be secure from contact with other animals of like kind not so affected, or who shall suffer such infected animals to be driven on the public highway or to range where they will be likely to come in contact with other animals not so affected, shall be guilty of a misdemeanor, and, on conviction, punished by a fine of not more than $500 for each offense.

SEC. 2. This act shall take effect immediately.

COLORADO.

Colorado has no law relative to bovine tuberculosis.

CONNECTICUT.

Dr. C. A. Lindsley, Secretary of the Connecticut State Board of Health, says: "There were a number of laws relating to tuberculosis in cattle. In 1895 some additional legislation was enacted which was somewhat in advance of public sentiment, and in 1897 every law on the subject was repealed excepting one forbidding the sale of milk from any cows that were known to be tuberculous."

The section (General Statutes, 1888) not repealed is as follows:

SEC. 2664. Any person who shall knowingly sell or expose for sale milk, or any product of milk, from any cow which shall have been adjudged by the Commission upon Diseases of Domestic Animals affected with tuberculosis or other blood disease, shall be fined not more than $7 or imprisoned not more than thirty days, or both.

DELAWARE.

No special law relating to bovine tuberculosis is on the statutes of Delaware; the disease is embraced in the general act of May 4, 1893, providing for the eradication of infectious and contagious diseases among domestic animals.

The Governor of the State is authorized to issue a proclamation, when necessary, stating that an infectious or contagious disease exists in the State, naming the locality, and warning all persons to seclude their animals of the kind diseased and to take the necessary precautions to prevent the spread of the disease.

Animals coming into the State may be detained for inspection and examination. The Governor may prescribe regulations for the destruction of animals affected with a contagious or infectious disease; no animal shall be destroyed, however, until examined by a veterinarian in the employ of the Governor. No provision is made for indemnifying the owners of animals killed on account of being diseased.

LAW.

(CHAPTER 639, VOL. 19, LAWS OF DELAWARE.)

AN ACT for the eradication of infectious and contagious diseases among the lower animals.

(Passed at Dover, May 4, 1893.)

SECTION 1. That in order to protect the lives and property of citizens of Delaware when threatened by epidemics of contagious and infectious diseases among the lower animals, authority is hereby vested in the Governor of this State to issue his proclamation stating that an infectious or contagious disease exists in any county or geographical district of the State, and warning all persons to seclude, in the premises where they may be at the time, all animals within the quarantined district that are of a kind susceptible to contract the disease in question, and ordering all persons to take such precautions against the spread of such disease as the nature thereof may in his judgment render necessary or expedient.

SEC. 2. To call upon all sheriffs and deputy sheriffs to carry out and enforce the provisions of such proclamations, orders, and regulations; and it shall be the duty of all sheriffs and deputy sheriffs to obey and observe all orders and instructions which they may receive from the Governor in the premises.

SEC. 3. To employ such and so many medical and veterinary practitioners and such other persons as he may from time to time deem necessary to assist in performing his duties, as set forth in the first section of this act, and to fix their compensation.

SEC. 4. To order all or any animals coming into the State to be detained at any place or places for the purpose of inspection and examination.

SEC. 5. To prescribe regulations for the destruction of animals affected with infectious or contagious disease, and for the proper disposition of their hides and carcasses, and of all objects which might convey infection or contagion: *Provided*, That no animal shall be destroyed until first examined by a medical or veterinary practitioner in the employ of the Governor as aforesaid.

SEC. 6. To prescribe regulations for the disinfection of all premises, buildings, boats, and railway cars, and of all objects from or by which infection or contagion may take place or be conveyed.

SEC. 7. To take such action in regard to exposed carcasses, bones, etc., and to graves of lower animals known to have died from diseases directly communicable in a fatal form to man as he, after consultation with well-informed persons, may deem to be expedient.

SEC. 8. To alter and modify, from time to time, as he may deem expedient, the terms of all such proclamations, orders, and regulations, and to cancel and withdraw the same at any time.

SEC. 9. For the purpose of defraying the expenses involved in carrying out the provisions of this act an annual appropriation, not to exceed $500, or so much thereof as occasion may require, is hereby made from the funds of this State.

DISTRICT OF COLUMBIA.

The eighth section of the act creating the Bureau of Animal Industry requires the Commissioners of the District of Columbia to take measures for the prompt suppression of all contagious, infectious, and communicable diseases affecting domestic animals and to prescribe regulations to prevent infection and contagion.

Owners of animals affected with or supposed to be affected with any such disease are required to isolate them and forthwith report the facts to the Chief of the Bureau of Animal Industry, and to follow such directions as said chief may prescribe.

All veterinary surgeons of the District and all members of the police force are required to inquire into and report upon known or suspected cases of such diseases.

The Chief of the Bureau only has authority to order the killing of any animal affected with a contagious or infectious disease; he also has power to quarantine premises.

LAW.

REGULATION for the suppression and prevention of contagious, infectious, and communicable diseases affecting domestic animals in the District of Columbia.

OFFICE OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA,
Washington, August 21, 1888.

Whereas the eighth section of the act of Congress approved May 29, 1884, entitled "An act for the establishment of a Bureau of Animal Industry, to prevent the exportation of diseased cattle, and to provide the means for the suppression and extirpation of pleuropneumonia and other contagious diseases among domestic animals," authorizes and requires the Commissioners to take measures for the prompt suppression of all contagious, infectious, and communicable diseases affecting domestic animals in the District of Columbia, to prescribe regulations for disinfection, and such other regulations as they may deem necessary to prevent infection and contagion, as provided in said section, do ordain, declare, and publish the following:

Ordered, That all persons having the care or custody of any domestic animal in the District of Columbia affected or supposed to be affected with any infectious, contagious, or communicable disease shall isolate and forthwith report the same to the Chief of the Bureau of Animal Industry of the Department of Agriculture, or to some officer in said Bureau in said District, designating the place where the same may be found, and shall place the same at his disposal and observe and follow such directions as such chief or officer shall prescribe in such case.

2. That it is hereby made the duty of all veterinary surgeons in said District and sanitary inspectors of the health department of the District, and of every member of the Metropolitan police force, to inquire and report upon all known or suspected cases referred to in Section 1 of this order.

3. That if any person or persons having the care or custody of any domestic animal in said District, affected or supposed to be affected as aforesaid, shall secrete or conceal the same, or use any device to conceal the same, or mislead the persons or officers who are charged with any duty with reference to such domestic animals, and all persons aiding therein, shall each suffer the penalty hereinafter described.

4. That the Chief of the Bureau of Animal Industry only may cause the death of any so diseased, or supposed to be diseased, animal in said District upon order, oral or written, from him for the death of such animal, and shall also prescribe the mode and place of such death, which shall be strictly pursued in the destruction of said animal, and the bodies of such animals so killed shall be removed by the health officer of the District upon notice from said chief.

5. That every person who shall violate any of the provisions of this regulation shall be fined in any sum not less than $10 nor more than $25 for each offense, to be enforced in the police court of the District of Columbia in the name of the District on information, etc.

The Commissioners having learned that a dangerous communicable disease prevails among domestic animals in the vicinity of the district which by contagion or transportation may affect the general health and safety, the Commissioners, in pursuance of the provisions of Section 8 of the act approved May 29, 1884, order the following measures for the prompt suppression of the same:

1. Upon the recommendation of the Commissioner of Agriculture, the Chief of the Bureau of Animal Industry in the United States Department of Agriculture is hereby authorized and empowered to act as veterinarian for the District of Columbia for the purposes named in the act above quoted.

2. So much of the rules and regulations prepared by the Commissioner of Agriculture in accordance with the requirements of the act aforesaid, and published under date of April 15, 1887, as are applicable to the District of Columbia are hereby approved and adopted by the Commissioners as regulations for the District: *Provided*, That wherever said regulations require report and action by the Commissioner of Agriculture, the Chief of the Bureau of Animal Industry, acting as veterinarian for the District, shall submit the requisite reports and recommendations for the consideration of and action by the Commissioners of the District of Columbia.

3. The legally appointed agents and inspectors of the Bureau of Animal Industry are hereby empowered, under the direction of the Chief of the Bureau, to discharge corresponding duties for the District of Columbia, and all citizens of the

District are hereby directed and required to recognize and respect the said Chief of the Bureau of Animal Industry and his duly appointed agents as lawful officers of the District.

4. The said Chief of the Bureau and his agents are authorized to inspect any premises in the District of Columbia where it is believed there exists any contagious, infectious, or communicable disease among any domestic animals, and if found needful to order the temporary quarantine of said animals, to cause premises to be disinfected, and if necessary to condemn the animals to be killed in order to prevent the spread of the disease.

5. The proceedings for the appraisal of the value of animals condemned to be killed shall be under the provisions of Section 8 of the regulations.

6. The Chief of the Bureau aforesaid, acting as veterinarian for the District, shall make to the Commissioners monthly reports of all matters relating to the subject of this order within the District of Columbia, and in addition thereto special reports and recommendations as often as shall be needful for the information of the Commissioners to enable them to carry into effect the provisions of the law.

FLORIDA.

Florida has no law relative to bovine tuberculosis.

GEORGIA.

Georgia has no law relating to bovine tuberculosis.

IDAHO.

Idaho has no legislation with reference to bovine tuberculosis.

ILLINOIS.

The law provides for the appointment by the Governor of three practical stock breeders, who shall constitute a Board of Live Stock Commissioners.

The duties of said board shall be to investigate all cases of contagious or infectious diseases coming to their knowledge and, so far as possible, to prevent their spread and provide for their extirpation. Owners of animals so diseased must notify the board, and the board may quarantine.

The board has power to slaughter diseased or exposed animals; to destroy or quarantine all barns, stables, premises, fixtures, etc.; to allow indemnity for slaughtered animals upon agreement or appraisement.

Claims for indemnity for animals slaughtered are made to the board, who shall determine the amount of indemnity, the maximum payment not to exceed $75 for bovine species.

The Governor shall appoint a State Veterinarian, who shall operate under the direction of the board, and who may appoint assistants.

He may also issue proclamation prohibiting entry into the State of diseased animals, except under prescribed regulations, and transportation corporations which violate such regulations are subject to a fine of not less than $1,000 nor more than $10,000 for each offense.

No person knowing of the existence of contagious or infectious disease among his animals shall conceal such fact; he shall not sell such diseased or exposed animals or remove them from his premises except by order of the board; he shall not import any such animals from another State, or in any way engage in traffic of such animals. The penalty for such violation of these provisions is not less than $25 nor more than $200, and imprisonment in county jail until fine and costs are paid for each offense; and he forfeits all right to indemnity.

The sum of $20,000 is appropriated to pay for property destroyed and for disinfection, and $5,000 for tuberculin tests and for indemnity for animals responding to the tuberculin test.

LAWS.

AN ACT to Revise the law in relation to the suppression and prevention of the spread of contagious and infectious diseases among domestic animals, approved June 27, 1885, in force July 1, 1885, as amended by an act approved and in force April 20, 1887, and an act approved June 15, 1887, in force July 1, 1887.

Be it enacted by the People of the State of Illinois, represented in the General Assembly:

SECTION 1. That the Governor shall, with the advice and consent of the Senate, appoint three practical stock breeders, not more than two of whom shall be members of the same political party, who shall constitute a Board of Live Stock Commissioners, who shall hold their office in the order in which they are named, the first for one year, the second for two years, and the third for three years; and their successors in office shall be appointed for three years each. Before entering on the duties of their office they shall take and subscribe to an oath of office for the faithful performance of their duties as such commissioners, and shall file the same with the Governor.

SEC. 2. It shall be the duty of said Board of Commissioners to cause to be investigated any and all cases, or alleged cases, coming to their knowledge of contagious and infectious diseases among domestic animals, and to use all proper means to prevent the spread of such diseases and to provide for the extirpation thereof; and in the event of reasonable ground for belief that any such contagious or infectious disease has broken out in this State, it shall be the duty of the person owning or having in charge any animal or animals infected with disease, or any other person having knowledge or reason to suspect the existence of such disease, to immediately notify said Board of Commissioners, or some member thereof, by communication to said board, of the existence of such disease; and thereupon it shall be the duty of said board, or some member thereof, or authorized agent of the board, immediately to cause proper examination thereof to be made, and if said disease shall be found to be a dangerously contagious or dangerously infectious malady, said board or any member thereof, or the State Veterinarian or any Assistant Veterinarian, shall order said diseased animals, and such as have been exposed to contagion, and the premises in which they are, to be strictly quarantined for such time as the board, or any member thereof, or such veterinarian may deem necessary, in charge of such person as the board, or any member thereof, or such veterinarian, shall designate, and they shall have power to order any premises and farms where the disease exists, or has recently existed, as well as exposed premises and farms, to be put in quarantine, so that no domestic animal which has been or is so diseased, or has been exposed to such contagious or infectious disease, be removed from the places so quarantined, nor allow any healthy animal to be brought therein, except under such rule or regulation as the said board may prescribe; and said board shall prescribe such regulations as they may deem necessary to prevent such disease from being communicated in any way from places quarantined. In all such cases of contagious and infectious disease, the said board, or, in case the number of animals shall not exceed five, any member thereof, shall have power to order the slaughter of all such diseased and exposed animals. The said board shall have power to cause to be destroyed all barns, stables, premises, fixtures, furniture, and personal property infected with any such contagious or infectious disease, so far as in their judgment may be necessary to prevent the spread of such disease, and where the same can not be properly disinfected. When the board, upon the written report of the State Veterinarian, or any of his assistants, determine that any animal is affected with, or has been exposed to, any dangerously contagious or infectious disease, the board, or any member thereof, may agree with the owner upon the value of such animal or property, and in case such agreement can not be made, said board, or the member acting in behalf of the board, may appoint three disinterested citizens of the State to appraise such diseased animal or exposed animals or property. Such appraisers shall subscribe to an oath in writing to fairly value such animal in accordance with the requirements of the act, which oath, together with the valuation fixed by said appraisers, shall be filed with the board and be preserved by them. Upon such appraisement being made, it shall become the duty of the owner to immediately destroy such animal and dispose of the same in accordance with the order of said board, or member thereof, and upon failure so to do said board, or any member thereof, shall cause such animal or animals or property to be destroyed and disposed of, and thereupon the said owner shall forfeit all right to receive the compensation allowed by said appraisers and provided for by this act. When the board, upon the written opinion of the State Veterinarian, determines that any barns, stables, outbuildings, or premises are so infected that the same can not be disinfected, they may quarantine such barns, stables, outbuildings or premises from use for the animals that may be infected by such use, and such quarantine shall continue until removed by the board, and a violation of such quarantine shall be punished as is provided for violations of other quarantine by this act.

SEC. 3. The Governor shall appoint a competent veterinary surgeon, who shall be known as the State Veterinarian, who, together with his assistants, shall act under the direction of said board in carrying out the provisions of this act. In the event of the inability of the said State Veterinarian to perform all the work which he may be directed to do by the said Board of Commissioners, he may, by and with the advice and consent of said board, appoint such other necessary assistant veterinarians upon terms not exceeding that paid the State Veterinarian. The State Veterinarian shall receive for his services the sum of $8 per day, for each day actually employed under the provisions of this act, together with his necessary expenses, to be certified to by said Board of Commissioners.

SEC. 4. Whenever said Board of Commissioners shall report to the Governor that such diseases have become epidemic in certain localities in other States, or that their condition would render such domestic animals liable to convey such disease, he may, by proclamation, schedule such localities, and prohibit the importation of any live stock of the kind diseased into the State, except under such regulations as may be prescribed by the said board and approved by the Governor stock. Such penalty shall be recovered in any county in this State into or through which stock is brought. upon information filed in the circuit or county court of any such county, or of the Superior court of Cook County. Any person who, knowing that any contagious or infectious disease exists among his domestic animals. shall conceal such fact. or knowing of the existence of such disease shall sell the animal or animals so diseased, or any exposed animal, or knowing the same. shall remove such diseased or infected animals from his premises to the premises of another, or knowing of the existence of such disease or exposure, shall drive or lead or ship the same by any car or steamboat to any other place in or out of this State. and any person or persons who shall bring any such diseased, or knowingly, shall bring any such exposed animal or animals into this State from another State, and any person or persons who shall knowingly, buy, receive, sell, convey, or engage in the traffic of such diseased or exposed stock, and any person who shall violate any quarantine regulations established under the provisions of this act, shall, for each. either, any, and all acts above mentioned in this section be guilty of a misdemeanor and, on conviction thereof, or of any said acts, shall be fined in any sum not less than $25 nor more than $200, and imprisonment in the county jail until the fine and costs are paid, and shall forfeit all right to the compensation for any animal or property destroyed under the provisions of this act. Any veterinary practitioner having information of any contagious or infectious disease in this State, and who shall fail to promptly report such knowledge to the Board of Live Stock Commissioners, shall be fined not exceeding $500, or be imprisoned in the county jail not more than one year for each offense.

SEC. 5. Whenever said board shall become satisfied that any dangerously contagious or infectious disease among domestic animals exists throughout any municipality or geographical district within this State, and, in their judgment, it is necessary to quarantine such municipality or geographical district in order to prevent the spread of such disease into contiguous territory, they shall report the same to the Governor, who may thereupon by proclamation schedule and quarantine such district, prohibiting all domestic animals of the kind diseased within such district from being removed from one premises to another or over any public highway or any unfenced lot or piece of ground, or from being brought into or taken from such infected district, except upon obtaining a special permit, signed by the Board of Live Stock Commissioners, or members thereof, or agents or officer of the board duly authorized by it to issue such permits: and such proclamation shall from the time of its publication bind all persons. After the publication of aforesaid proclamation, it shall be the duty of every person who owns or is in charge of animals of the kind diseased within the scheduled district to report to said board within one week the number and description of such animals, location, and the name and address of the owner, and during the continuance of such quarantine to report to said board all cases of sickness, deaths, or births among such animals. It shall also be the duty of any and all persons within the scheduled district receiving and purchasing cattle for slaughter to delay the killing of such animals until a veterinary surgeon with authority from said board is present to make a postmortem examination of the carcasses. Any violation of the aforesaid quarantine regulations and duties shall be visited with like penalties, which may be recovered in like manner as is provided for the violation of other quarantine as provided in Section 4 of this act: *Provided*, That nothing contained in this section shall be so construed as to prevent the movement of any animals of the kind diseased through such territory under such regulations as the Board of Live Stock Commissioners may prescribe, and the Governor approve: *And provided further*. That all cattle within the scheduled district slaughtered by order of the board shall not be taken from said district for slaughter.

SEC. 6. Nothing contained in this act, or any section thereof, shall be interpreted so as to prevent the removal or shipment of diseased or exposed animals, under the orders of the board created by this act, from one place to another by said board or its agents, by driving along the public highway or shipment on cars or steamboats, when, in the opinion of said board, such removal is necessary for the suppression of such contagious or infectious disease.

SEC. 7. Whenever quarantine is established in accordance with the provisions of Section 2 of this act, valid notice of the same may be given by leaving with the owner or occupant of any premises in person, or delivering to any member of his family, or any employee over the age of 10 years found on the premises so quarantined, notice thereof, written or printed, or partly written and partly printed, and, at the same time, explaining the contents thereof. Such quarantine shall be sufficiently proven in any court by the production of a true copy of such notice of quarantine, with a return thereon of the service of the same in the manner above required. Any person violating said quarantine shall be guilty of a misdemeanor and punished as is provided in Section 4 of this act, and on conviction shall be liable for all damage that may result to other persons in consequence of such violation: *Provided*, That anyone feeling himself aggrieved by such quarantine may appeal to the full Board of Commissioners, who shall thereupon sustain, modify, or annul said quarantine as they deem proper.

SEC. 8. All fines recovered under the provisions of this act shall be paid into the county treasury of the county in which the suit is tried by the person collecting the same in the manner now provided by law, to be used for county purposes; and it shall be the duty of State's attorneys in their respective counties to prosecute for all violations of this act.

SEC. 9. All claims against the State arising from the slaughter of animals, as herein provided for, shall be made to said Board of Commissioners, under such rules and regulations as they may prescribe, and it shall be the duty of said Board of Commissioners to determine the amount which shall be paid in each case on account of animals so slaughtered, which, in case of animals of the bovine species, shall be based on the fair cash market value thereof for beef, or for use for dairy purposes, not to exceed $75 per head, and, in cases of animals of the equine species, on their fair cash market value, not to exceed $100 per head, and report the same to the Governor; and the Governor shall indorse thereon his order to the State Auditor, who shall thereupon issue his warrant on the State Treasurer for the same.

SEC. 10. Said Board of Commissioners, or any member thereof, and the State Veterinarian and his assistants, in the performance of their duties under this act, shall have power to call on sheriffs and their deputies, constables, and peace officers, mayors of cities, city and town marshals and policemen to assist them in carrying out its provisions, and it is hereby made the duty of all such officers to assist in carrying out the provisions of this act when ordered so to do; and said Commissioners and the State Veterinarian and his assistants shall have, while engaged in carrying out the provisions of this act, the same power and protection that other peace officers have, and any such officer who fails or refuses to enforce the lawful orders and quarantine of said board, or any member thereof, or any veterinarian acting under them, in the proper execution of the powers conferred by this act, shall be deemed guilty of a misdemeanor and punished as provided in Section 4 of this act.

SEC. 11. The said board shall cooperate with any commissioner or other officer appointed by the United States for the suppression of contagious diseases among ized statement of all sums expended by them under this act, including a statement of all damages recommended by them to be paid for all animals slaughtered, and the amounts paid therefor.

SEC. 13. The members of said board shall each receive the sum of $5 per day for each day necessarily employed in the discharge of their duties, their necessary expenses, and other incidental expenses necessarily incurred in the performance of their duties under this act, to be paid on certified and itemized vouchers to be approved by the Governor.

SEC. 14. All acts and parts of acts inconsistent herewith are hereby repealed.

[Clause 35 of the general appropriation act of 1899.]

Thirty-fifth. To the Board of Live Stock Commissioners the following sums are hereby appropriated: For salary of Secretary, $1,800 per annum; to pay the expenses of the commissioners, $3,000 per annum; for assistant secretary, who shall be a stenographer and typewriter, the sum of $1,200 per annum; for salary of five agents at the Union Stock Yards (Chicago), one agent at the National Stock Yards (East St. Louis), and one at Peoria, $9,000 per annum; for janitor and messenger of office, $720 per annum; for salary of assistant veterinarian at Union Stock Yards, Chicago, $1,800 per annum; for salary and expenses of State Veterinarian, $3,500 per annum; for telegraphing, postage, express, and other incidental expenses of the office, $1,200 per annum; also for paying damages for animals diseased or exposed to contagion slaughtered; for per diem and traveling expenses of assistant State veterinarians and agents, and expenses of the board or its officers incurred in making examinations of the same or in making examinations of any animals supposed to be diseased; for property necessarily destroyed, and for expenses of disinfection of premises when such disinfection is practicable under the provisions of any law of this State for the suppression and prevention of the spread of contagious and infectious diseases among domestic animals, the sum of $20,000, or so much thereof as may be necessary; and any sums of money that may be received by the Board of Live Stock Commissioners as the net proceeds of sale of the healthy carcasses of slaughtered animals under the provisions of this law shall be paid by them into the State Treasury; also for paying expenses of conducting tuberculin tests among dairy and breeding cattle, and for paying damages for cattle destroyed that respond to the tuberculin test and are diseased with tuberculosis, $5,000 per annum, or so much thereof as may be necessary, the valuation in such cases to be determined by the board in accordance with the provisions of law, and the amount of damages to be paid in each case to be based upon the value of each animal as disclosed and determined by a postmortem examination.

PROCLAMATIONS AND RULES AND REGULATIONS.

In consequence of the second proclamation given herewith, dated August 7, 1900, there are no restrictions on the importation of dairy and breeding cattle now being enforced in Illinois.

Proclamation scheduling localities and territory on account of tuberculosis among dairy and breeding cattle.

STATE OF ILLINOIS, EXECUTIVE DEPARTMENT,
Springfield, June 13, 1899.

Whereas I have received from the State Board of Live Stock Commissioners the following communication:

To His Excellency JOHN R. TANNER, *Governor of Illinois:*

SIR: Pursuant to the terms of an act of the General Assembly entitled, "An act to revise the law in relation to the suppression and prevention of the spread of contagious and infectious diseases among domestic animals," approved June 27, 1885, in force July 1, 1885, as amended by an act approved and in force April 20, 1887, and an act approved June 15, 1887, and in force July 1, 1887, the State Board of Live Stock Commissioners herewith reports to your Excellency the fact that tuberculosis, a dangerously contagious disease, prevails to a greater or less exent among the cattle constituting the dairy and breeding herds of all the States and Territories of the United States, and of foreign countries, and that cattle affected with this disease, being brought into the State of Illinois, are dangerous and liable to communicate said disease to other cattle with which they are brought in contact, and respectfully requests your Excellency to issue a proclamation in pursuance of the terms of said above-entitled act, scheduling all States and territory within the United States, other than the State of Illinois, and all foreign countries, and prohibiting the importation of dairy or breeding cattle (cows, bulls, or calves) therefrom into the State of Illinois, except in accordance with the rules and regulations adopted by this board and herewith submitted for your approval.

We have the honor to be, very respectfully, your obedient servants,

J. H. Paddock,
James P. Lott,
J. M. Darnell,
Commissioners.

Attest:
C. P. Johnson, *Secretary.*

Now, therefore, I, John R. Tanner, Governor of the State of Illinois, as provided by Section 4 of the above-entitled act, do hereby make proclamation of the foregoing facts, and schedule the foregoing territory, to wit:

All of the States and territory of the United States, other than the State of Illinois, and all foreign countries.

And prohibit the importation of dairy or breeding cattle (cows, calves, or bulls, used or intended to be used for dairy or breeding purposes) from the above-described territory into the State of Illinois, except under the regulations hereto attached and made a part hereof, that have been prescribed by the State Board of Live Stock Commissioners and approved by me.

RULES AND REGULATIONS prescribed by the State Board of Live Stock Commissioners of Illinois, governing the importation of dairy and breeding cattle into this State from States and territory scheduled or to be scheduled by the Governor's proclamation with reference to tuberculosis among cattle.

Rule 1. Any shipper or owner of dairy or breeding cattle in States or territory scheduled or to be scheduled by the Governor on account of tuberculosis among cattle, desiring to ship such cattle into the State of Illinois, must, before offering the same for shipment to any railroad or transportation company—which is meant to include boats, ferries, and bridges—or before driving the same into this State, have such cattle tested with tuberculin by a veterinarian recognized by the sanitary authorities of the State in which such owner or shipper resides and authorized by such authorities to make such tests.

Rule 2. Before any such cattle destined for shipment as aforesaid are offered to any railroad company for such shipment, or are driven into the State of Illinois, they must be tested with tuberculin by a veterinary inspector duly authorized by the State Veterinary Sanitary authorities of the State from which such cattle are to be shipped or driven, who has been accepted by the State Board of Live Stock Commissioners of Illinois to make such tests in accordance with the rules of said Board. On the completion of said test, said veterinary inspector shall make out a deliver the original copy of said certificate to said owner and shall mail the duplicate copy thereof to the Secretary of the State Board of Live Stock Commissioners at Springfield, Ill. The shipper may then immediately ship such certified cattle, by presenting the original copy of certificate to the railroad company, to be attached to way bill, memorandum bill, or bill of lading accompanying the shipment. [Note.—Blanks will be furnished on application to the Secretary of the State Board of Live Stock Commissioners, Springfield. Ill.]

RULE 3. In conducting such tuberculin test, the veterinarian shall take at least four preliminary temperatures at intervals of two hours during the day of the evening of injecting, and at least five temperatures at intervals of two hours, commencing ten hours after injection.

RULE 4. No shipment of dairy or breeding cattle destined to any point in the State of Illinois from States and territory described and designated in the proclamation of the Governor aforesaid shall be received by any railroad or transportation company doing business in the State of Illinois from the original shipper or from any connecting railroad or transportation company, unless the same be accompanied by the certificate designated in Rule 2, properly endorsed as provided therein; such certificate to be attached to the way bill, memorandum bill, or bill of lading accompanying the shipment, and to be delivered with said bill to the consignee.

RULE 5. Any dairy or breeding cattle (cows, bulls, or calves) shipped or driven into the State of Illinois from other States and territory designated and described in the Governor's proclamation aforesaid without being accompanied by the certificate aforesaid properly endorsed, will, upon discovery, be placed in quarantine until tested with tuberculin by a veterinarian designated by this board, which test shall be made at the expense of the owner; and any cattle that shall react to such test and be condemned will be destroyed without compensation to the owner.

This proclamation to go into effect and be in force from and after the first day of July, A. D. 1899.

In testimony whereof I hereunto set my hand and cause the great seal of the State of Illinois to be affixed.

Done at the city of Springfield on the day and year first above written.

JOHN R. TANNER, *Governor.*

By the Governor:

JAMES A. ROSE, *Secretary of State.*

STATE OF ILLINOIS,
OFFICE OF STATE BOARD OF LIVE STOCK COMMISSIONERS,
Springfield, June 22, 1899.

To whom it may concern:

By direction of the Governor, it is herewith ordered that his proclamation with reference to tuberculosis among dairy and breeding cattle destined for shipment into the State of Illinois, and the regulations under said proclamation, shall not be held to apply to cattle to be brought into the State from other States for the purpose of exhibition at the State Fair, or District or County Fairs: *Provided,* That in the event that sales shall be made from such exhibition herds, to remain in the State of Illinois, such cattle so sold shall be first submitted to the tuberculin test before the sale is consummated and the cattle are shipped to their destination.

J. H. PADDOCK,
J. P. LOTT,
J. M. DARNELL,
Commissioners.

Attest:
C. P. JOHNSON, *Secretary.*

Approved:
JOHN R. TANNER, *Governor.*

PROCLAMATION temporarily suspending the operation of the regulations contained in the proclamation of the Governor of Illinois with reference to tuberculosis among dairy and breeding cattle, issued June 13, 1899.

STATE OF ILLINOIS, EXECUTIVE DEPARTMENT,
Springfield, August 7, 1900.

Whereas I have received from the State Board of Live Stock Commissioners the following communication:

SPRINGFIELD, *August 6, 1900.*

To His Excellency, JOHN R. TANNER, *Governor of Illinois:*

SIR: Whereas, The Judge of the County Court of Dekalb County, Ill., has, in the trial of a criminal case pending in said court, on change of venue from Kane County, entitled, The People of the State of Illinois *vs.* Smith Younges, brought for the violation of the quarantine regulations contained in your proclamation of June 13, 1899, with reference to tuberculosis among cattle, held that your said proclamation is void because the report of the State Board of Live Stock Commissioners of Illinois and the representations contained therein upon which said proclamation was based are insufficient and not in compliance with the provisions of the statute in such case made and provided, and

Whereas, In a similar case, pending and on trial in Kane County, entitled, The People of the State of Illinois *vs.* Elmer Fellows, the Judge of the County Court held that the act under which said proclamation was issued is constitutional and that the proclamation itself is valid, and

Whereas, The aforesaid case, tried in Dekalb County, because of being a criminal prosecution, can not be appealed to the Supreme Court and a Judicial decision of the highest tribunal of the State secured, and

Whereas, A replevin case is now pending in Kane County, growing out of the enforcement of the aforesaid quarantine regulations, that will come up for a hearing in the Circuit Court of Kane County at the September term, and will afford an opportunity for a final decision on the constitutionality of the act in question and the validity of the aforesaid proclamation by the Supreme Court,

The State Board of Live Stock Commissioners of Illinois herewith respectfully recommends to Your Excellency the issuance of a proclamation suspending the operation of your proclamation of June 13, 1899, scheduling all States and territory of the United States, other than the State of Illinois, and all foreign countries, and prohibiting the importation of cattle therefrom into the State of Illinois until such cattle shall be tested with tuberculin, etc., until a decision is procured from the Supreme Court in the case now pending, above referred to, as to the constitutionality of the law and validity of said proclamation.

We have the honor to be, very respectfully, your obedient servants,

J. H. PADDOCK,
JAMES P. LOTT,
J. M. DARNELL,
State Board of Live Stock Commissioners.

Attest:
C. P. JOHNSON, *Secretary.*

Now, therefore, I, John R. Tanner, Governor of the State of Illinois, do hereby make proclamation in pursuance of the recommendations contained in the foregoing communication, and hereby suspend the further operation of my proclamation scheduling localities and territory on account of tuberculosis among dairy and breeding cattle, dated and issued at Springfield, June 13, 1899, until such time as the Supreme Court shall pass upon the constitutionality of the act by authority of which said proclamation was issued, and the validity of said proclamation: *Provided,* That nothing in this proclamation shall be construed so as prevent the prosecution or defense of any litigation now pending, growing out of the enforcement of the quarantine regulations in said proclamation of June 13, 1899.

This proclamation to go into effect and be in force from and after date of the issuance thereof.

In testimony whereof, I hereunto set my hand and cause the great seal of the State of Illinois to be affixed.

Done at the city of Springfield this 7th day of August, A. D. 1900.

JOHN R. TANNER, *Governor.*

By the Governor:
JAMES A. ROSE, *Secretary of State.*

RULES of the State Board of Live Stock Commissioners of Illinois regarding investigation of tuberculosis among dairy and breeding cattle. and making compensation.

WHEREAS, The Forty-first General Assembly has made an appropriation to this Board for the payment of damages to the owners of dairy and breeding cattle affected with tuberculosis, as determined by the tuberculin test. therefore. in pursuance of the terms of the clause making such appropriation aforesaid,

Resolved, That the following rules governing the investigation of the reported or suspected cases of tuberculosis among cattle, and for determining the compensation in each case to be made, be, and the same are hereby, adopted:

RULE 1. All cases of supposed tuberculosis among dairy or breeding cattle reported to this board, or any member or officer thereof, State Veterinarian, or any Assistant State Veterinarian or agent of the board, shall be investigated under the direction of the board, and if upon clinical examination by the veterinarian designated to make such examination sufficient evidence of the existence of tuberculosis in any animal of any herd shall appear, the affected animal, together with all the exposures, shall be placed in quarantine until the entire herd is tested with tuberculin under the direction of the board.

RULE 2. All animals in any herd tested with tuberculin that shall give a reaction in temperature of 2 or more degrees (where such reaction is, in the opinion of the veterinarian in charge, due to the tuberculin) shall be deemed affected with tuberculosis, isolated from the balance of the herd, and held in quarantine until slaughtered and examined postmortem. All animals that react 1.5 degrees and less than 2 degrees shall be isolated and held in quarantine for a retest.

RULE 3. For the purpose of fixing and determining the value of animals to be slaughtered because of reaction to the tuberculin test, and for determining the amount of compensation to the owner to be certified in each case. animals tested and taken for slaughter shall be divided into six classes. to be known as follows: Class A, Class B. Class C, Class D, Class E. and Class F, and the class to which any animal belongs shall be determined by the State Veterinarian (or the Assistant State Veterinarian in charge of the postmortem inspection), who shall be guided in such determination by the appearance and condition of the internal organs of each animal upon postmortem inspection.

Class A shall include all animals that shall, upon postmortem examination, fail to disclose the presence of tuberculosis in any of their organs.

Class B shall include all animals affected with the disease in its incipient stage.

Class C shall include all animals apparently affected for a period of one year.

Class D shall include all animals apparently affected for a period of two years.

Class E shall include all animals apparently affected for a period of three years.

Class F shall include all animals apparently affected for a period of more than three years.

For all animals of the A Class the owner shall be entitled to the full amount of the appraisement.

For all animals of the B Class he shall be entitled to receive 75 per cent of the appraisement.

For all animals of the C Class he shall be entitled to receive 50 per cent of the appraisement.

For all animals of the D Class he shall be entitled to receive 35 per cent of the appraisement.

For all animals of the E Class he shall be entitled to receive 25 per cent of the appraisement.

For all animals of the F Class he shall be entitled to receive 15 per cent of the appraisement.

Provided, That in the event that the proceeds from any carcass shall exceed the percentage of valuation determined, the owner shall receive the full amount of such proceeds.

INDIANA.

Indiana has a general law concerning contagious diseases among domestic animals, but the only work done in connection with tuberculosis is in making examinations, when requested, in cases where a veterinarian's certificate is required to accompany cattle entering from another State.

The law under which the Live Stock Sanitary Commission is operating and the rules governing the work of the commission are given below:

LAW.

[CHAPTER 212.]

AN ACT to provide for a Live Stock Sanitary Commission and a State Veterinarian, and to prescribe their powers and duties, and to prevent and suppress contagious and infectious diseases among the live stock of the State, and to declare an emergency. (Approved March 2, 1889.)

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That a commission is hereby established which shall be known under the name and style of "The State Live Stock Sanitary Commission." The commission shall consist of three commissioners who are practical agriculturists and engaged in and identified with the live stock interests of the State. One of said commissioners shall be elected for a term of four years, one for a term of three years, and one for the term of two years, whose terms of office shall commence upon the taking and filing with the Secretary of State the oath of office herein provided for, and shall continue in office until their successors are elected and qualified. The said Live Stock Sanitary Commission, as soon as practicable after its organization, [shall] appoint an experienced, competent, and skilled veterinary surgeon for the State, who at the time of his appointment shall be a graduate in good standing of a recognized college of veterinary surgery, who shall hold his office for the term of two years, and until his successor shall be appointed and qualified, unless for cause he shall be sooner removed from said office by order of said commission.

SEC. 2. Immediately on the taking effect of this act the State Board of Agriculture shall nominate and the Governor confirm the appointment of three commissioners, as provided for in Section 1 of this act, and during the annual meeting of the State Board of Agriculture immediately preceding the expiration of the term of any commissioner his successor shall be nominated and confirmed by the Governor for a term of four years.

SEC. 3. Said commissioners and veterinary surgeons, before they enter upon the duties of their said offices, shall each take and subscribe an oath of office similar in form to that required of State officers, and file the same with the Secretary of State.

SEC. 4. Each commissioner shall receive the sum of $4 per day and necessary expenses for the time necessarily spent in the discharge of the duties herein required of him, and the said veterinary surgeon shall receive such sum for his services as said commission may from time to time allow him, not to exceed in any one year the rate of $2,000 per year, and never to equal that amount unless said and other regulations as it may deem necessary: *Provided*, That the provisions of this act shall not apply to swine.

SEC. 6. It shall be the duty of any person who discovers, or has reason to believe, that any domestic animal belonging to him or her, in his care, or that may come under his observation belonging to other parties, is infected with any disease supposed to be dangerous, contagious, or infectious, to immediately report such fact to the secretary of the board of health of the county where such animal is situated, whose duty it shall be to report the fact to said Sanitary Commission.

SEC. 7. It shall be the duty of said secretary of such county board of health to keep a record of all cases so reported to him, including the age, sex, and distinguishing characteristics of such animals, and it shall be the duty of such secretary of said board of health to immediately examine, either in person or by a qualified person appointed by him for that purpose, all animals so reported to be diseased, and if they find that said animal or animals are affected with a contagious disease, to immediately report the same to said commission, or some member thereof, and the said secretary shall promptly take such measures as he shall deem most expedient to prevent the spread of the disease until said commission shall be able to relieve him from the charge and care of such animal or animals. All the necessary expenses necessarily incurred by said secretary of such board of health and his agents in carrying out the provisions of this act shall be paid in the same manner as are those of the commission.

SEC. 8. The commission, or any member thereof to whom the existence of any infectious or contagious disease of domestic animal or animals is reported, shall forthwith proceed to the place where such domestic animal or animals are and examine the same, and if in his or their opinion any infectious or contagious disease exists, he or they shall prescribe such temporary quarantine and regulations as will prevent the spread of the contagion or infection, and notify the State Veterinarian, who shall forthwith proceed to the place where the said contagious or infectious disease is said to exist, and examine said animal or animals and report his finding to said commission, who shall at once prescribe and apply such rules and regulations as in their judgment the exigencies of the case may require for the effectual suppression and eradication of the disease; and for that purpose the said commission may list and describe the domestic animals affected with such disease, and those which have been exposed thereto, and include within the affected district or premises so defined and quarantined with reasonable certainty as would lead to their identification, and no domestic animal liable to become infected with the disease, or capable of communicating the same, shall be permitted to enter or leave the district, premises, or grounds so quarantined, except by authority of the commission. The said commission shall also, from time to time, give and enforce such directions and prescribe such rules and regulations as to separating, mode of handling, treating, feeding, and caring for such diseased and exposed animals as shall be necessary to prevent the two classes of animals from coming in contact with each other, and perfectly isolate them from all other domestic animals of the same class which have not been exposed thereto, and which are susceptible to becoming infected with the disease; and the said commission and veterinarian are hereby authorized and empowered to enter upon any ground or premises, and into any building upon such premises, when and wherever it may be necessary to enter, to fully carry out the provisions of this act. When in the opinion of said commission it shall be necessary, in order to prevent the further spread of any contagious or infectious disease among the live stock of the State, to destroy animals affected with or which have been exposed to any such disease, it shall determine what animals shall be slaughtered, and appraise the same, as hereinafter provided, and cause the same to be slaughtered and the carcasses disposed of as in their judgment will best protect the health of domestic animals in that locality.

SEC. 9. When the commission shall have determined the quarantine and other regulations necessary to prevent the spread among domestic animals of any malignant, contagious, or infectious disease found to exist among the live stock of the State and given their orders as hereinbefore provided, prescribing quarantine and other regulations, it shall notify the Governor of the State thereof, whose duty it shall be to at once issue his proclamation proclaiming the boundary of such quarantine as fixed by such commission, together with the orders, rules, and regulations prescribed by said commission, which proclamation may be published by written or printed handbills posted within the boundaries or on the lines of the district, premises, places, or grounds quarantined: *Provided, however*, That if the commission decide that it is not necessary, by reason of the limited extent of the district in which such diseases exist, that a proclamation should be issued, then none shall be issued, but such commission shall give such notice as may to it seem best to make the quarantine established by it effective.

SEC. 10. Whenever said commission shall direct the killing of any domestic animal or animals, it shall be the duty of the commissioners to appraise the animal or animals condemned, and in fixing the value thereof the commissioners shall be governed by the value of said animal or animals at the date of appraisement.

SEC. 11. When any live stock shall be appraised and killed by order of the commission, it shall issue to the owner of said stock so slaughtered a certificate showing the number and kind of animals killed, for what reason killed, and the amount, in their judgment, to which the owner is entitled for said animals from the State, and report the same to the Governor of the State, which certificate, if approved by the Governor, shall be presented to the Auditor of State, who shall draw his warrant therefor on the State Treasury, payable out of any moneys in the Treasury not otherwise appropriated.

SEC. 12. When any animal or animals are slaughtered under the provisions of this act by order of the commission, the owner thereof shall be paid therefor the appraised value as fixed by the appraisement hereinbefore provided for: *Provided, however*, That the right to payment for animals slaughtered by order of the commission under the provisions of this act shall not extend to the owners of animals which have been brought into the State in a diseased condition, or from a State, country, territory, or district in which the disease with which the animal is affected, or to which it has been exposed, exists. Nor shall any animal be paid for by the State which may have been brought into the State in violation of any law or quarantine regulation thereof, or the owner of which shall have violated any of the provisions of this act, or disregarded any rule, regulation, or order of the Live Stock Sanitary Commission, or any member thereof, made under the provisions of this act. Nor shall any animal be paid for by the State which came into the possession of the claimant with the claimant's knowledge that such animal was diseased, or was suspected of any disease, or having been exposed to any contagious or infectious disease.

SEC. 13. Any person who shall have in his possession any domestic animal affected with any contagious or infectious disease, knowing such animal to be so affected, or, after having received notice that such animal is so affected, who shall permit such animal to run at large, or who shall keep such animal where other domestic animals not affected by, or previously exposed to, such disease may be exposed to its contagion or infection, or who shall sell, ship, drive, trade, or give away such diseased animal or animals which have been exposed to such infection or contagion, or who shall move or drive any domestic animal in violation of any direction, rule, regulation, or order establishing or regulating any quarantine, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more than $500 for each of such diseased or exposed domestic animals which he shall have thus permitted to run at large, sell, ship, drive, trade, or give away in violation of the provisions of this act: *Provided*, That any owner of any domestic animal which has been with or exposed to any contagious or infectious diseases may dispose of the same after having obtained from the State Veterinarian a certificate of health for such animal or animals.

SEC. 14. Any person or corporation who shall knowingly bring into the State any domestic animal or animals which are infected with any contagious or infectious disease, or any animal or animals which have been exposed to any such contagious or infectious disease shall, for every such offense, forfeit and pay to the State not less than $100 nor more than $500, to be recovered by suit in the name of the State.

SEC. 15. Any person who owns or is in possession of live stock which is infected, or which is reported under the provisions of this act to be infected with any contagious or infectious disease, who shall wilfully prevent or refuse to allow the State Veterinarian or commission or other authorized officer or officers to examine such stock, or shall hinder or obstruct the State Veterinarian or other authorized officer or officers in any examination of or in any attempts to examine such stock, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more than $500.

SEC. 16. Any person who shall knowingly violate, disregard, evade, or attempt to violate, disregard, or evade any of the provisions of this act, or who shall knowingly violate, disregard, or evade any of the rules, regulations, orders, or directions of the Live Stock Sanitary Commission establishing and governing quarantine shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined in any sum not less than $10 nor more than $500.

SEC. 17. The commission provided for in this act shall have power to employ at the expense of the State such persons and purchase such supplies and materials as may be necessary to carry into full effect all necessary orders given by it.

SEC. 18. The commissioners shall have power to call upon any sheriff, deputy sheriff, or constable to execute their orders, and such officers shall obey the orders of said commissioners, and the officers performing such duties shall receive compensation therefor as is provided by law for like services, and shall be paid therefor in like manner as other expenses of said commission are paid. And any officer may arrest and take before any justice of the peace of the county any person found violating any of the provisions of this act, and such officer shall immediately notify the prosecuting attorney of such arrest, whose duty it shall be to prosecute the person so offending according to law.

SEC. 19. Whenever the Governor of the State shall have good reason to believe that dangerous, contagious, or infectious disease has become epizootic in certain localities in other States, Territories, or countries, or that there are conditions which render such domestic animals from such infected districts liable to convey such disease, he shall by proclamation prohibit the importation of any live stock of the kind diseased into the State, unless accompanied by a certificate of health given by a duly authorized veterinary surgeon, and all such animals arriving in this State shall be examined immediately by said commission or some member thereof, and if he or they deem it necessary, he or they shall have said animal inspected by the State Veterinary Surgeon, and if, in his opinion, there is any danger of contagion or infection, they shall be placed in close quarantine until such danger of contagion or infection is passed, when they shall be released by order of said commission or some member thereof.

SEC. 20. For the purposes of this act, each member of the Live Stock Sanitary Commission is hereby authorized to administer oaths and affirmations.

SEC. 21. The commission is hereby authorized and required to cooperate with any board, commission, or officer acting under any present or future act of the Congress of the United States for the suppression and prevention of contagious and infectious diseases among domestic animals, and the same right of entry, inspection, and condemnation of diseased animals upon private premises is hereby granted to the United States board, commission, or officer as is hereby granted to the State Live Stock Sanitary Commission.

SEC. 22. Whenever it is deemed necessary by the State Live Stock Sanitary Commission to supervise and inspect any of the lines of transportation in this State and the stock yards in connection with the same, suitable inspectors shall be appointed by said commission whose duty it shall be to examine such lines of transportation and stock yards as to condition, manner of transporting stock, and such other matters as such commission may direct, and report such examination in detail to said commission, and the expense of such examination shall be paid by the corporation or corporations or individuals in charge of such lines of transportation or stock yards. Any such corporation, corporations, or individuals owning or operating such lines of transportation or stock yards shall conform promptly to all regulations made by said Sanitary Commission of which they shall have notice from such commission, and for any neglect or omission to comply with such regulations as herein provided, they shall be subject to the fines and penalties in this act provided, to be enforced and collected according to the provisions of this act.

SEC. 23. That whenever by act of the Congress of the United States the payment of the appraised value of domestic animals slaughtered for the purpose of preventing the spread of infectious and contagious diseases among any class or classes of domestic animals in the several States shall have been provided, and the necessary appropriation for such payment out of the National Treasury made by such act of Congress, then, from and after that date there shall be no further payment made out of the State Treasury for domestic animals of the class or classes payment for which is so provided by said act or acts of Congress, by order of said State Live Stock Sanitary Commission.

SEC. 24. The State Live Stock Sanitary Commission shall make annually a detailed report of its doings to the Governor, which report shall by the Governor be transmitted to the Legislature at its next regular or called session.

SEC. 25. That an emergency exists for the immediate taking effect of this act; therefore, the same shall be in force from and after its passage.

RULES.

RULES OF THE STATE LIVE STOCK SANITARY COMMISSION.

1. Upon reliable information that any domestic animal is infected with any dangerously contagious or infectious disease, the case must at once be reported to the secretary of the county board of health of the county in which the case exists, and said secretary shall at once notify the secretary of this commission. A failure to comply with the above will render the party liable to be prosecuted under the laws of the State of Indiana provided in such cases.

2. When any horse, mule, ass, cattle, or sheep is reported to be infected with any dangerously contagious or infectious disease, said secretary or any member of the Live Stock Sanitary Commission shall at once notify the State Veterinarian of such report, who shall at once visit the premises where such animals are and thoroughly examine the same, and if, upon examination, he is satisfied that the disease is a dangerously contagious or infectious disease he shall quarantine the animal or animals and premises, and also quarantine all animals or premises that have been exposed to such disease, and promptly notify

released from quarantine by making satisfactory proof to the commission that the cause for which such quarantine was originally declared no longer exists.

4. The State Veterinarian or secretaries of county boards of health making reports of investigation shall give the name and post office address of the owner of animals inspected, location of such animals, date of inspection, complete description of animals diseased and of animals exposed, a description of the exposure to which they have been subjected, the condition of the diseased animals, the name and address of the nearest constable, and the time employed in such investigation. The report must be accompanied by an exact duplicate of the quarantine notice served, with return made thereon of the manner of service, and all correspondence relative to the cause. Said report must be addressed to the Live Stock Sanitary Commissioners of the State of Indiana, and directed to the secretary at Lafayette, Indiana. Proper blanks will be furnished upon application to the secretary.

5. Whenever it shall come to the knowledge of the secretary of the county board of health that animals have been brought into his locality from a State or county known or believed to be infected, against which the Governor of the State has proclaimed, he shall immediately notify the secretary of this commission of the facts so far as he knows them covering the following points, viz: Locality from whence such animals came, name and post-office of owner or person in charge, if shipped by railroad or boat, giving names of same, time of arrival, number, age, sex, and breed of animals, so far as it is practicable to ascertain.

6. The commission will not approve the claim for any animals destroyed unless they were so destroyed by the order of some member of the commission, having first been appraised by them.

7. When it is deemed necessary, any member of the commission may appoint any local veterinarian to do any service in examining, treating, and caring for diseased animals, and no bill for services, examinations, or for materials and expenses will be recognized unless first ordered by some one of the commission.

8. Assistant State Veterinarians, when appointed by the commission to do special work, shall be entitled to receive for their services $3 per day and necessary expenses; but in no case shall they receive more than $4 per day and necessary expenses while engaged in the public service; neither shall they be permitted to make any charge nor receive any compensation from a private individual during the time they are actually employed and paid by the State. Nor will any bill for services or expenses be approved unless so ordered by some member of the commission.

9. Any person desiring to ship any animal or animals from this State to another State, the authorities of which require health certificates to accompany such animal or animals, may call upon the State Veterinarian, or some one authorized by this commission, and request him to inspect such animal or animals. It shall thereupon be the duty of such veterinarian to at once make such inspection, and if he finds the animal or animals to be healthy and to come from a locality wherein there does not, nor has not for four months preceding, existed any case of contagious disease among the kind of animals in question, he shall give to the owner of such animal or animals a certificate of health, specifying the number, sex, and breed of such animal or animals. For such services said veterinarian shall be entitled to receive from the owner the same compensation as herein allowed him by the State, together with his necessary expenses in going from and to his regular place of business or abode. In no case shall the State be liable for the cost of such services; neither shall the veterinarian receive from any private person for such service a compensation greater than herein authorized. Any violation of this provision shall be considered sufficient ground for dismissal from the service of the State. At the end of each month veterinarians making such inspections are required to make a tabulated report of the same to the secretary of this commission.

IOWA.

A veterinary surgeon, appointed by the Governor, has supervision of all contagious and infectious diseases among domestic animals, and, with the concurrence of the State Board of Health, "may make such rules and regulations as he may regard necessary for the prevention and suppression and against the spread" of said diseases. These rules and regulations require the concurrence of the executive council for publishment and enforcement.

The veterinarian makes investigations of animals upon the order of the Governor; he may destroy diseased animals under certain conditions, paying for them their actual value in their condition when condemned. An appeal may be taken to the district court by either party if a condemned animal is found not to be diseased and the indemnity exceeds $25. No indemnity shall be paid for animals destroyed while in transit across the State.

The authorities are empowered to cooperate with the United States authorities in the prevention or eradication of infectious or contagious diseases.

LAW.

[CHAPTER 14, TITLE 12, CODE.]

SEC. 2529. The State Veterinary Surgeon shall be appointed by the Governor, subject to removal by him for cause, who shall hold office for three years. He shall be a graduate of some regularly established veterinary college, skilled in that science, and shall be by virtue of his office a member of the State Board of Health.

SEC. 2530. He shall have supervision of all contagious and infectious diseases among domestic animals in, or being driven or transported through, the State, and is empowered to establish quarantine against animals thus diseased or that have been exposed to others thus diseased, whether within or without the State, and with the concurrence of the State Board of Health may make such rules and regulations as he may regard necessary for the prevention and suppression, and against the spread of said disease or diseases, which rules and regulations, the executive council concurring, shall be published and enforced, and in the performance of his duties he may call for the assistance of any peace officer.

SEC. 2531. Any person who wilfully hinders, obstructs, or resists said Veterinary Surgeon, his assistants, or any peace officer acting under him or them when engaged in the duties or exercising the powers herein conferred, or violates any quarantine established by him or them, shall be guilty of a misdemeanor.

SEC. 2532. Said surgeon shall biennially make a full and detailed report of his doings since his last report to the Governor, including his compensation and expenses, which report shall not exceed 150 pages of printed matter.

SEC. 2533. Whenever a majority of any board of supervisors or township trustees, or any city or town council, whether in session or not, shall in writing notify the Governor of the prevalence of, or probable danger from, any of said diseases, he shall notify the Veterinary Surgeon, who shall at once repair to the place desigwritten order of such surgeon, with the consent of the owner, or upon approval of the Governor. and by virtue of such order such surgeon, his deputy or assistant, or any peace officer may destroy such diseased stock, and the owner thereof shall be entitled to receive its actual value in its condition when condemned, to be ascertained and fixed by the State Veterinary Surgeon and the nearest justice of the peace. who, if unable to agree, shall call upon the nearest, or other justice of the peace upon whom they agree as umpire, and their judgment shall be final when the value of the stock, if not diseased, would not exceed $25; but in all other cases either party shall have the right of appeal to the district court, but such appeal shall not delay the destruction of the diseased animals. The Veterinary Surgeon shall at once file with the Governor his written report thereof, who shall, if found correct, indorse his finding thereon, whereupon the Auditor of State shall issue his warrant therefor upon the Treasurer of State. who shall pay the same out of any moneys at his disposal under the provisions of this act, but no compensation shall be allowed for stock destroyed while in transit through or across the State, and the word "stock," as herein used, shall be held to mean cattle, horses, mules, and asses.

SEC. 2535. The Governor, with the Veterinary Surgeon, may cooperate with the Government of the United States for the objects of this chapter, and the Governor may accept and receipt for any moneys receivable by the State under the provisions of any act of Congress which may at any time be in force upon this subject and pay the same into the State treasury to be used according to the act of Congress and the provisions of this chapter as nearly as may be.

SEC. 2536. There is annually appropriated, out of any moneys not otherwise appropriated, the sum of $3,000, or so much thereof as may be necessary, for the uses and purposes herein set forth.

SEC. 2537. Any person, except the Veterinary Surgeon, called upon under the provisions of this chapter, shall be allowed and received $2 per day while actually employed.

SEC. 2538. When engaged in the discharge of his duties the Veterinary Surgeon shall receive the sum of $5 per day and his actual expenses, the claim therefor to be itemized, verified, accompanied with written vouchers, and filed with the State Auditor, who shall allow the same and draw his warrant upon the treasury therefor.

RULES AND REGULATIONS.

Rules and regulations for the control of contagious and infectious diseases of animals were issued on January 19, 1898, but the only reference to bovine tuberculosis is in Rule 12, which is as follows:

RULE 12. In suspected cases of bovine tuberculosis the tuberculin test shall be recognized as a valuable diagnostic.

The report of the veterinarian for the biennial period ended June 30, 1899, contains the following as rules which "should be adopted by all who desire to have healthy animals and their dairy products free from taint of any kind." These were also published as information by the State Board of Health in Circular No. 5—1900:

DIRECTIONS FOR DISINFECTING DAIRY BARNS AND FOR THE CARE OF MILK.

1. Clean out all litter, excrement, rejected fodder, cobwebs, and dust, thoroughly sweeping down the walls and ceilings.
2. Spray ceiling, walls, and floor with a solution of bichloride and water, one to five hundred.

3. Thoroughly whitewash all parts of the barn with a wash containing one-quarter of a pound of carbolic acid and a pound and one-half of lime to a gallon of water.

4. See that the drainage from under the floors is sufficient to carry away all refuse matter. This is an important factor in keeping a healthy, clean barn.

5. See that all manure is carted away daily. We find in some instances great piles of heating manure against the outside walls, and the offensive fumes therefrom permeating all parts of the barn.

6. See that the watering troughs are cleansed two or three times a week, and only pure water given the dairy cow.

After milking each cow the milk should be carried to a scrupulously clean milk room, and there strained and cooled. It should be stirred frequently until thoroughly cooled. A can of milk may be placed in a refrigerator and allowed to cool without stirring and it is certain to have a bad odor and taste, but with proper stirring while cooling this will be prevented.

KANSAS.

Kansas has no specific laws relative to tuberculosis, but rules and regulations were issued by the State Sanitary Commission on March 1, 1900, which were the basis of a proclamation by the Governor on March 5, 1900. However, a second proclamation, raising quarantine established by the first, was made on October 17, 1900, due to a decision of a court in Illinois adverse to tuberculosis regulations. This action was taken because Illinois had suspended all rules and regulations pending a decision of the supreme court, and because Missouri had done likewise.

The proclamations are given herewith:

PROCLAMATIONS.

TOPEKA, KANS., *March 1, 1900.*

To His Excellency W. E. STANLEY, *Governor of Kansas:*

For the better protection of the domestic animals of the State of Kansas, and to prevent the spread of contagious and infectious diseases among same, we herewith report to your excellency the fact that tuberculosis, a dangerous and contagious disease, prevails to a greater or less extent among the cattle constituting the dairy and breeding herds of the States hereinafter named, and that cattle affected with this disease are being brought into the State of Kansas, and are liable to communicate said disease to other cattle with which they are brought in contact. Therefore we respectfully request your excellency to issue a proclamation prohibiting the importation of cattle from the States hereinafter named, except in accordance with the rules and regulations adopted by this board and herewith submitted to you for your approval.

M. C. CAMPBELL,
TAYLOR RIDDLE,
F. H. CHAMBERLAIN,
Members Live Stock Sanitary Commission.

New Jersey, Delaware, Pennsylvania, Ohio, Kentucky, Tennessee, Indiana, Michigan, Illinois, Wisconsin, Minnesota, Iowa, and Nebraska are infected with a contagious and infectious disease in cattle known as tuberculosis, and that some of said cattle are being shipped into the State of Kansas for breeding and dairy purposes, it is therefore ordered:

First. That from and after this date it shall be unlawful for any cattle to be shipped, driven, or transported from the above-named States into the State of Kansas for breeding or dairy purposes: *Provided, however*, That shipments may be made from such States into the State of Kansas for breeding and dairy purposes after said cattle have been examined and found free of tuberculosis and a permit and bill of health given by a veterinarian of the United States Bureau of Animal Industry, or a veterinarian acting under the order and direction of the Live Stock Sanitary Board of any of the above-named States, and the certificate so given by such veterinarians shall be given in duplicate, the original of which shall be forwarded to the Secretary of the Live Stock Sanitary Commission, Topeka, Kans., and the duplicate given to the railroad company, to be attached to the bill of lading for said cattle. And no railroad company shall accept any such cattle nor bring nor ship any such cattle into the State of Kansas from any of the above-named States for breeding or dairy purposes without the certificate and bill of health herein provided for; and no railroad company shall accept from its connecting lines any cattle shipped in violation of this provision.

Second. *Provided, however*, That native cattle of the State of Nebraska may be moved into the State of Kansas upon the owner or person in charge thereof making affidavit, stating, in substance, that said cattle are natives of said State, and that said cattle have not been in any of the States above named for a year immediately preceding the making of said affidavit. Said affidavit shall be made before some officer authorized to administer oaths, and the above affidavit so made shall be given in duplicate, the original of which shall be forwarded to the Secretary of the Live Stock Sanitary Commission, Topeka, Kans., and the duplicate shall be given to the owner or person in charge of said cattle, to be attached to the bill of lading for said cattle, or carried by the owner or person in charge when driven in: and no railroad company shall accept any such cattle for shipment, nor bring nor ship any such cattle into the State of Kansas for breeding or dairy purposes from the State of Nebraska, nor accept from its connecting lines any cattle shipped in violation of this provision.

Third. Cattle brought into Kansas from any of the above named States for the purpose of exhibition at county, district, or State fairs shall not be subject to the above regulations: *Provided, however*, That in the event sales shall be made from such exhibition, and the cattle destined to points in Kansas, the animal sold shall be submitted to the tuberculin test before the sale is consummated or the cattle moved or shipped to their destination. In case the test should show any such animals to be affected with tuberculosis, a permit for shipment to any point in this State shall not be granted.

Fourth. All railroad, live stock, transportation, and stock-yard companies, and their employees, and all other persons, are hereby forbidden to transport, drive, or in any way handle cattle in Kansas, except in compliance with the foregoing rules, under the pains and penalties of the following statute:

Extract of Chapter 2, Session Laws of 1884: "SEC. 21. Any person who shall violate, disregard, or evade, or attempt to violate, disregard, or evade, any of the * * * rules and regulations, orders or directions of the Live Stock Sanitary Commission establishing and governing quarantine, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $100 or more than $5,000."

Sheriffs, constables, and police officers in Kansas are hereby directed to enforce these regulations, and to report any violations of same to this commission.

In testimony whereof I hereby set my hand, and cause to be affixed the great seal of the State of Kansas.

Done at Topeka, Kans., this 5th day of March, 1900.

W. E. STANLEY, *Governor of Kansas.*

By the Governor:

GEO. A. CLARK, *Secretary of State.*

PROCLAMATION RAISING QUARANTINE.

STATE OF KANSAS, EXECUTIVE DEPARTMENT.

Whereas on the 13th day of October, A. D. 1900, the Live Stock Sanitary Commission of the State of Kansas made the following recommendation, to wit:

To the GOVERNOR OF THE STATE OF KANSAS:

Pending a decision of the supreme court of the State of Illinois as to the legality of the rules and regulations of the State governing the movement of cattle, and requiring the application of tuberculin to ascertain whether or not the cattle are afflicted with tuberculosis, the Live Stock Sanitary Commission of Illinois have suspended their rules and regulations. The Live Stock Sanitary Commission of the State of Missouri have done likewise; and at a meeting of the Live Stock Sanitary Commission of Kansas, held at our office October 11, 1900, it was unanimously decided to recommend to your excellency to suspend the rules and regulations promulgated by you March 1, 1900, scheduling the following States, to wit, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Ohio, Kentucky, Tennessee, Indiana, Michigan, Illinois, Wisconsin, Minnesota, Iowa, and Nebraska, and by so doing to permit cattle from said scheduled States to enter Kansas without restrictions.

M. C. CAMPBELL, *Chairman.*

Now, therefore, I, W. E. Stanley, Governor of the State of Kansas, in accordance with said recommendation of the Live Stock Sanitary Commission, do hereby proclaim and declare that the quarantine established March 1, 1900, as aforesaid, against the introduction of cattle into the State of Kansas from the said States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Ohio, Kentucky, Tennessee, Indiana, Michigan, Illinois, Wisconsin, Minnesota, Iowa, and Nebraska be, and the same is hereby, raised, and that said rules and regulations promulgated March 1, 1900, be suspended from and after this date.

In testimony whereof I have hereunto subscribed my name and caused to be affixed the great seal of the State of Kansas. Done at Topeka this 17th day of October, A. D. 1900.

W. E. STANLEY, *Governor.*

Attest:

GEO. A. CLARK, *Secretary of State.*

KENTUCKY.

There is no specific law in Kentucky relative to bovine tuberculosis, but the general law against contagious and infectious diseases affecting cattle is broad enough to embrace tuberculosis.

The State Board of Health is charged with the enforcement of the affected stock to seclude the same. The farms or premises where such disease exists may be quarantined by the board and issue such regulations concerning the quarantine as they may deem necessary. The board may prescribe regulations for the destruction of diseased animals. No animal, however, shall be killed until after examination by a veterinarian in the employ of the board. Indemnity is not provided.

LAW.

[CHAPTER 5, ARTICLE II, KENTUCKY STATUTES.]

SECTION 48. Whenever any contagious or infectious disease affecting cattle shall exist in this State, it shall be the duty of the State Board of Health to take measures to promptly suppress and effectively prevent the same from spreading.

SEC. 49. For such purposes the State Board of Health shall have power to issue their proclamation, stating that infectious or contagious disease exists in any county or counties of the State, and warning all persons to seclude all animals in their possession that are affected with such disease, or have been exposed thereto, and ordering all persons to take such precautions against the spreading of such disease as the nature thereof may, in their judgment, render necessary or expedient; to order that any premises, farm or farms where such disease exists, or has existed, be put in quarantine at the owner's expense, so that no cattle be removed from or brought to the premises so quarantined, and to prescribe such regulations concerning the mode of quarantine as they may judge necessary or expedient to prevent infection or contagion being communicated in any way from the places so quarantined; to call on the sheriffs and deputy sheriffs to assist in enforcing and carrying out the provisions of said proclamations and orders, whose duty it shall be to observe and obey all of said orders and proclamations; to employ a veterinary surgeon and practitioner, and such other persons as may be necessary from time to time in performing their duties under this article, and to prescribe regulations for the destruction of such animals so affected, and for the disposition of their hides and carcasses, and all objects which might convey infection or contagion, at the owner's expense. But no animal shall be destroyed by said board unless first examined by a veterinary practitioner acting in the employ or under the direction of said board, or unless the owner thereof knows that such cattle are so affected. Said board shall also have power to prescribe regulations for the disinfection of all premises, buildings, and railway cars, and all objects by or from which infection may take place or be conveyed; to alter, modify, cancel, or withdraw any of said proclamations, orders, or regulations whenever they may deem it proper so to do.

SEC. 50. Any person knowingly transgressing or failing to comply with the terms of any proclamation, order, or regulation issued or prescribed by the board shall be guilty of a misdemeanor and on indictment be fined in a sum not less than $200 nor more than $1,000; and the owner of any cattle affected with the contagious disease known as pleuropneumonia, and knowing the same to be so affected, who fails to kill and bury or burn them, or fails to report the same at once to the State Board of Health, shall be fined for each offense in a sum not less than $200 nor more than $1,000; and the said board, upon the failure of any such person to immediately kill said diseased cattle when ordered by the board so to do, shall have the right to kill the same at the owner's expense.

SEC. 51. [Refers to pleuropneumonia.]

SEC. 52. [Refers to pleuropneumonia.]

SEC. 53. The State Board of Health shall have the power to employ a veterinarian, who shall be a regular practitioner and graduate of some college of veterinary surgery and practice, and who shall be known as the State veterinarian, whose duty it shall be to render such service under this law as the board may direct. Said veterinarian shall be entitled for the services rendered to a sum not exceeding $5 per day and traveling expenses for the time he is actually engaged at work for said board, to be paid by the county court of the county in which the disease is prevailing. The veterinarian shall receive nothing from any other person for examinations and work done at the instance of said board, and in the event he does he shall, upon indictment and conviction, be fined in a sum not less than $200 nor more than $1,000.

SEC. 54. In order to effectually carry out the provisions and intentions of this law, the board may engage and obtain the services of any veterinarian in the employ of the United States, and otherwise cooperate with the proper department of the Federal Government in the suppression of said disease in this Commonwealth.

SEC. 55. The Governor shall, in addition to the number of persons now on said State Board of Health, appoint three discreet and intelligent housekeepers engaged in the cattle business, whose duty it shall be to serve on said board without any charge for services, but said three persons shall only have the right and power to act thereon with reference to matters embraced in this article.

SEC. 56. If any person shall be convicted of a violation of 50th, 51st, or 52d sections of this article, the jury shall have the power to determine by their verdict whether or not such person is at the time of his trial and conviction the owner of any cattle which have been exposed to said disease by having been within the same inclosure with a diseased animal within four months next before trial, and if they find he has such cattle they will find the number, sex, and distinguishing marks, and it shall be the duty of the court to order the destruction of said cattle by the sheriff at the owner's expense, and the expense thereof shall be taxed as costs in the case.

LOUISIANA.

Louisiana has no law relative to bovine tuberculosis.

MAINE.

The administration of the laws relative to tuberculosis in Maine is by a commission of three persons appointed by the Governor.

One of the duties of the State of Maine Cattle Commission is to cause investigation to be made of tuberculosis, and for this purpose the commission or its agent may enter any premises, cars, or vessels where there is reason to believe that the disease exists. If the disease is discovered, the fact shall be published in the newspapers and the officials of transportation companies notified.

Quarantine is required, as is the appraisal of the diseased animals, in accordance with the rules and regulations made by the commission. The commission must destroy such diseased animals and pay the owner one-half of their value, as determined upon the basis of health before infection: *Provided, however*, That the appraised value shall not be more than $100 for pedigreed animals nor more than $50 for those not pedigreed. No indemnity is allowed for an animal which

The commission is empowered to issue rules and regulations for carrying the laws into effect. All such rules and regulations, however, must have the approval of the Governor before they become operative and be published.

A fine of $100, or imprisonment not exceeding ninety days, or both fine and imprisonment, is the penalty for obstructing in any way the work of the commission.

If the appraised value of an animal is not accepted by the owner, a rigid quarantine is maintained against such animal.

Transportation companies within the State are prohibited from accepting for shipment any cattle known to be affected with tuberculosis, and no owner of cattle so affected shall drive them on foot from one part of the State to another. The penalty for violation of this provision is a fine not exceeding $200, or by imprisonment not exceeding six months, or by both fine and imprisonment.

LAW.

AN ACT to extirpate contagious diseases among cattle. (Approved February 14, 1889.)

Be it enacted by the Senate and House of Representatives in Legislature assembled, as follows:

SECTION 1. [As amended by act approved March 10, 1893.] Chapter 194. That for the purpose of facilitating and encouraging the live-stock interests of Maine, and for extirpating all insidious, infectious, and contagious diseases, now or that may be among cattle, horses, and sheep, and especially tuberculosis, the Governor of the State is hereby authorized and required, immediately after the passage of this act, to appoint a board of cattle commissioners consisting of three persons of known executive ability who shall be charged with the execution of the provisions of this act, and who shall be known and designated as the State of Maine Cattle Commission, and whose powers and duties shall be those provided for in this act, and whose tenure of office shall be at the option of the Governor. The compensation of said commissioners shall be at the rate of $3 per day during the time they are actually engaged in the discharge of their duties as commissioners. The said commissioners shall respectively take an oath to faithfully perform the duties of their office, and shall immediately organize as such commission by the election of one of their number as president thereof, and proceed forthwith to the discharge of the duties devolved upon them by the provisions of this act.

SEC. 2. [As amended by act approved March 10, 1893.] Chapter 194. That it shall be the duties of said commissioners to cause investigation to be made as to the existence of tuberculosis, pleuropneumonia, foot-and-mouth disease, and in any other infectious or contagious diseases. And such commissioners or their duly constituted agent are hereby authorized to enter any premises or places, including stock yards, cars, and vessels within any county or part of the State in or at which they have reason to believe there exists any such diseases, and to make search, investigation, and inquiry in regard to the existence thereof. Upon the discovery of the existence of any of the said diseases, the said commissioners are hereby authorized to give notice, by publication, of the existence of such disease, and the locality thereof, in such newspapers as they may select, and to notify in writing the officials or agents of any railroad, steamboat, or other transportation company doing business in or through such infected locality of the existence of such disease; and are hereby authorized and required to establish and maintain such quarantine of animals, places, premises, or localities as they may deem necessary to prevent the spread of any such disease, and also to cause the appraisal of the animal or animals affected with the said disease, in accordance with such rules and regulations by them as hereinafter authorized and provided, and also to cause the same to be destroyed, and to pay the owner or owners thereof one-half of their value, as determined upon the basis of health before infection, out of any moneys appropriated by the legislature for that purpose: *Provided, however*, That no appraised value shall be more than $100 for an animal with pedigree recorded or recordable in the recognized herdbooks of the breed in which the animal destroyed may belong, nor more than $50 for an animal which has no recordable pedigree: *Provided further*, That in no case shall compensation be allowed for an animal destroyed under the provisions of this act which may have contracted or been exposed to such disease in a foreign country, or on the high seas, or that may have been brought into this State within three years previous to such animal's showing evidence of such disease, and the owner or owners shall furnish satisfactory evidence as to the time such animal or animals shall have been owned in the State; nor shall compensation be allowed to any owner who in person or by agent knowingly and wilfully conceals the existence of such disease, or the fact of exposure thereto in animals of which the person making such concealment, by himself or agent, is in whole or part owner.

SEC. 3. That the said commissioners are hereby authorized and required to make, record, and publish rules and regulations providing for and regulating the agencies, methods, and manners of conducting, the investigations aforesaid regarding the existence of said contagious diseases; for ascertaining, entering, and searching places where such diseased animals are supposed to exist; for ascertaining what animals are so diseased or have been exposed to contagious diseases; for making, reporting, and recording descriptions of the said animals so diseased or exposed and destroyed, and for appraising the same, and for making payment therefor; and to make all other needful rules and regulations which may, in the judgment of the commissioners, be deemed requisite to the full and due execution of the provisions of this act. All such rules and regulations, before they shall become operative, shall be approved by the Governor of Maine and thereafter published in such manner as may be provided for in such regulations; and after such publication said rules and regulations shall have the force and effect of law, so far as the same are not inconsistent with this act and other laws of the State or United States.

SEC. 4. That any person or persons who shall knowingly and wilfully refuse permission to said commissioners, or either of them, or their duly constituted agent, to make, or who knowingly and wilfully obstructs said commissioners, or either of them, or their duly constituted agent, in making all necessary examinations of and as to animals supposed by said commissioners to be diseased as aforesaid, or in destroying the same, or who knowingly attempts to prevent said commissioners, or either of them, or their duly constituted agent, from entering upon the premises and other places hereinbefore specified where any of said diseases are by said commissioners supposed to exist, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, or of either of the acts in this section prohibited, shall be punished by fine not exceeding $100 or by imprisonment not exceeding ninety days, or by both fine and imprisonment, at the discretion of the court.

SEC. 5. That any person who is the owner of or who is possessed of any interest in any animals affected with any of the diseases named in Section 2 of this act, or any person who is agent, common carrier, consignee, or otherwise is charged with any duty in regard to any animal so diseased or exposed to the contagion of such disease, or any officer or agent charged with any duties under the provisions of this act, who shall knowingly conceal the existence of such contagious disease or the fact of such exposure to said contagion, and who shall knowingly and wilfully fail within a reasonable time to report to the said commissioners their knowledge or their information in regard to the existence and location of said disease or of such exposure thereto, shall be deemed guilty of a misdemeanor, and shall be punishable as provided in Section 4 of this act.

SEC. 6. That when the owner of animals decided under the provisions of this act, by the proper authority, to be diseased or to have been exposed to contagion, refuses to accept the sum authorized to be paid under the appraisement provided for in this act, it shall be the duty of the commissioners to declare and maintain a rigid quarantine as to the animals decided as aforesaid to be diseased or to have been exposed to any contagious or infectious disease, and of the premises or places where said cattle may be found, according to the rules and regulations to be prescribed by said commissioners, approved by the Governor, and published as provided in the third section of this act.

SEC. 7. That no person or persons owning or operating any railroad, nor the owner or owners or masters of any steam, sailing, or other vessels within the State, shall receive for transportation or transport from one part of the State to another part of the State, or to bring from any other State or foreign country any animals affected with any of the diseases named in Section 2 of this act, or that have been exposed to such diseases, especially the disease known as tuberculosis, knowing such animals to be affected or to have been so exposed, nor shall any person or persons, company or corporation, deliver for such transportation to any railroad company or to the master or owner of any vessel any animals, knowing them to be affected with or to have been exposed to any of said diseases; nor shall any person or persons, company or corporation, drive on foot or transport in private conveyance from one part of the State to another part of the State any animal, knowing the same to be affected with or to have been exposed to any of said diseases. Any person or persons violating the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by fine not exceeding the sum of $200 or by imprisonment not exceeding six months, or by both fine and imprisonment.

SEC. 8. That it shall be the duty of the several county attorneys to prosecute all violations of this act which shall be brought to their notice or knowledge by any person making the complaint under oath; and the same shall be heard in any supreme judicial court having jurisdiction in the county in which the violation of this act has been committed.

SEC. 9. That the said commissioners are hereby authorized to appoint or elect one of their number as secretary of said board, who shall receive a reasonable compensation for his services during the time in which, under the provisions of this act, the services of the said commissioners shall be required. The said commissioners shall make and preserve a full record of all rules and regulations promulgated under the provisions of this act, of all payments and expenses hereunder incurred, and all other transactions performed by said commissioners in the discharge of their duties as herein provided; and the said commissioners shall, on or before the first Wednesday in January of each year, during their continuance in service, and at other times as they may deem conducive to the public interests, or as they may be required so to do by the Governor of State, report to said Governor full and accurate accounts of their expenditures, and other proceedings under the provisions of this act, and of the condition of said diseases if any, in the State, to be communicated by him to the Legislature. Whenever the functions of said commission shall be suspended or terminated, it shall turn over to the Secretary of State all its books, papers, records, and other effects, taking his receipt therefor, and he shall remain the custodian of the same until such time as the functions of said commission may be restored.

SEC. 10. That the commissioners shall have power, and are hereby authorized, to employ skilled veterinarians and such other agents and employees as they may deem necessary to carry into effect the provisions of this act, and to fix the compensation of the person or persons so employed, and to terminate such employment at their discretion; and they are authorized, out of the moneys by this act appropriated, to make such expenditures as may be needed for the actual and necessary traveling expenses of themselves and their said employees, stationery, expense of disinfecting premises, cars, and other places, destroying diseased and exposed animals, and paying for the same, and such other expenses and expenditures as they may find to be actually necessary to properly carry into effect the provisions of this act.

SEC. 11. That the moneys appropriated by this act shall be paid over to the secretary of said commission from time to time as the same may be found to be needed, upon requisition made by the said commissioners, and shall be disbursed by the said secretary of said commission only upon vouchers approved by said commissioners or a majority of them. The said secretary shall, before entering upon the duties of his office, take an oath to faithfully discharge the duties thereof, and shall enter into a bond to the State of Maine, with sureties to be approved by the Treasurer of State, in such sum as he may designate, for the faithful accounting of all moneys received by the said secretary of the commission under the provisions of this act.

SEC. 12. That for the purpose of carrying into effect the provisions of this act, the sum of $5,000, or so much thereof as may be necessary, is hereby appropriated out of any moneys in the treasury not otherwise appropriated.

SEC. 13. That all acts and parts of acts inconsistent or in conflict with the provisions of this act be, and the same are hereby, repealed.

RULES AND REGULATIONS.

NOTICE OF QUARANTINE.

TO WHOM IT MAY CONCERN: Public notice is hereby given, that in consequence of the prevalence of tuberculosis among Massachusetts cattle, as disclosed by the official reports of their authorities, supplemented by postmortems held in Maine of cattle purchased in that State for dairying and breeding purposes, the Cattle Commissioners of the State of Maine believe that the public health of its citizens and the welfare of this commonwealth demand that a rigid quarantine (against all cows whether in milk or dry, and all bulls for breeding purposes) be maintained on and after January 1, 1892, until further notice, and all such cattle entering the State of Maine thereafter will be subject to quarantine at the owner's expense: *Provided, however*, That the above regulations shall not apply to Western cattle coming through Massachusetts into Maine for the purpose of slaughter.

The attention of all persons is directed to Sections 2, 3, 4, 5, and 7, of Chapter 138, of the Public Laws of Maine, 1887, applying to cattle affected with contagious diseases, and which will hereafter be rigidly enforced.

JOHN W. DEERING, *Saco, President.*
F. O. BEAL, *Bangor, Treasurer.*
GEO. H. BAILEY, *Deering, D. V. S.*

A quarantine station will be provided near Morrill's Corner, Deering, where all cattle brought into Maine in violation of the above notice will be kept until dis-

NOTICE OF QUARANTINE.

The Cattle Commissioners of the State of Maine, having found from recent experience that it has become absolutely necessary to supplement our former notice of quarantine issued January 1, 1892, so that it shall include not only Massachusetts, but all other States, order that no cattle for dairy or breeding purposes shall be brought into this State either by road, water, railroad, or other conveyance until further notice; and all such cattle entering our State without a permit signed by some member of our board will be subject to quarantine at the owner's expense, and the attention of all persons is directed to Chapters 177 and 194 of the Public Laws of Maine, which will hereafter be rigidly enforced.

JOHN W. DEERING, *Saco, President.*
F. O. BEAL, *Bangor, Treasurer.*
GEO. H. BAILEY,
Deering, State Veterinary Surgeon.

MARYLAND.

Maryland has a general law concerning contagious and infectious diseases among domestic animals, but tuberculosis is not specifically mentioned. The enforcement of such laws is by the State Live Stock Sanitary Board, whose duty it is "to protect the health of the domestic animals of the State from all exotic, contagious, or infectious diseases," and is authorized to enforce such quarantine, sanitary, or other regulations as it may deem necessary.

Local boards of health are required to investigate reported cases of contagious or infectious diseases in their respective counties, and, if found to be contagious or infectious, to report the same to the Live Stock Sanitary Board.

The board has power to prohibit the introduction into the State of animals which they have reason to believe are affected with such diseases or which have been exposed thereto.

The Governor is authorized to issue a proclamation declaring a quarantine against States or Territories where such diseases exist, and during the pendency of the quarantine no animals shall be brought into the State from the districts named.

A Chief Veterinary Inspector is appointed by the Governor, who has power, with the consent of the Live Stock Sanitary Board, to isolate and quarantine all infected or exposed animals; to prescribe such regulations as he may deem necessary to prevent infection or contagion being communicated in any way from the premises so quarantined; to prescribe regulations for the destruction of such animals, etc.

Practicing veterinarians within the State are required to report all cases of contagious or infectious disease that may come to their knowledge; a failure to do so renders them liable to a fine not exceeding $50 for each offense.

All rules and regulations issued by the board have the force and effect of laws.

Whether to quarantine or slaughter diseased animals is in the discretion of the board. Animals may be slaughtered after appraisement, and the amount appraised is authorized as indemnity.

The board is authorized to cooperate with the Bureau of Animal Industry in the work of eradicating any contagious or infectious disease.

LAW.*

AN ACT to prevent the spread of contagious or infectious diseases among the live stock of this State. (Approved April 5, 1888.)

SECTION 1. *Be it enacted by the General Assembly of Maryland*, That a commission is hereby established which shall be known under the name and style of the "State Live Stock Sanitary Board," to consist of three commissioners, who are practically engaged in the breeding of live stock, who shall be appointed by the Governor, by and with the advice and consent of the Senate, biennially, at such time as executive appointments are required by law to be made, and who shall hold their offices until their successors are duly appointed and qualified.

SEC. 2. *And be it enacted*, That it shall be the duty of said board, as far as possible, to protect the health of the domestic animals of the State from all exotic, contagious, or infectious diseases, and glanders in horses, and for this purpose it is authorized and empowered to establish, maintain, and enforce such quarantine, sanitary or other regulations as it may deem necessary, and shall maintain an office in the city of Baltimore; it shall constitute and prosecute diligent inquiries in the several counties and ascertain so far as possible the exact condition of the health of the live stock in said counties, and the local boards of health of the several counties shall investigate all reported cases of contagious or infectious diseases of live stock in their respective counties, and if found to be contagious or infectious shall report the same at once to the said Live Stock Sanitary Board; and such board shall have the power to prevent the introduction into this State of animals from other States which they may have reason to believe are affected with a contagious or infectious disease, or have been exposed thereto, and to detain the same at any place for inspection or quarantine, in its discretion.

SEC. 3. *And be it enacted*, That on presentation to the Governor by the said Live Stock Sanitary Board of the facts, showing the existence of any contagious or infectious disease among the domestic animals of any other State, Territory, or district, the Governor may, by proclamation, declare such State, Territory, or district, or any part thereof, in quarantine, and during the pendency of such quarantine it shall not be lawful for any person or persons, company or corporation, to bring into the State of Maryland any animals or animal of the kind so infected from the district so quarantined. Any person or persons, company or corporation, whether owner, agent, or carrier, convicted of a violation of the provisions of this section, shall be subject to a fine not less than $100 nor more than $500 for each offense.

SEC. 4. *And be it enacted*, That each member of said board shall be paid the sum of $5 per day and the necessary expenses for time actually spent in the discharge of his duties. And the sum of $3,000 per year be, and the same is hereby, appropriated, or so much thereof as may be necessary to meet the expenses of said ever he has reason to believe contagious or infectious disease may exist, and he may visit any such stable at any hour of the day, between sunrise and sunset, and shall have power, with the consent of the said Live Stock Sanitary Board, to order all animals which have been exposed to such contagion or infection to be isolated in such manner as the nature thereof may, in his judgment, render necessary to prevent the spreading of such disease; to order that any premises, farm or farms, stables, or railway cars where such disease exists, or has existed, be put in quarantine, so that no domestic animals of the same species shall be removed from or brought to the premises or place so quarantined until the same shall have been properly disinfected; to prescribe such regulations as he may judge necessary or expedient to prevent infection or contagion being communicated in any way from the places so quarantined; to call upon all sheriffs and deputy sheriffs, constables, policemen, or other officers of the State, the city of Baltimore, or of any county, for information and assistance to carry out and enforce the provisions of such orders and regulations; to prescribe regulations for the destruction of animals affected with or exposed to an infectious or contagious disease, and for the proper destruction of their hides and carcasses, and all objects which might carry infection or contagion; to prescribe regulations for the disinfection of all buildings, premises, and railway cars, and of all objects from which or by which infection or contagion might take place or be conveyed; to alter and modify from time to time, as he may deem expedient, the terms of all such orders and regulations, and to cancel or withdraw the same at any time; and it shall be the duty of all sheriffs and deputy sheriffs, constables, policemen, or other officers of the State, city of Baltimore, or counties, to obey and observe all orders and instructions which they may receive from said veterinary inspector in the enforcement of the provisions of this act within their respective jurisdiction.

SEC. 6. *And be it enacted*, That any person who shall violate or transgress the terms or requirements of any order or regulation issued and prescribed by the said Veterinary Inspector, with the consent of the Live Stock Sanitary Board, under the authority of this act, or shall refuse to said Veterinary Inspector or his assistants, access to his, her, or their premises, farms, stables, cars, sheds, or pens, or shall resist said inspector or his assistants in applying any of the quarantine orders or regulations, or shall conceal the fact that the contagious or infectious disease exists on his premises, shall be subject to a fine of not more than $100 nor less than $50, which fine may be imposed by any justice of the peace of the city of Baltimore or any county where such offense may be committed.

SEC. 7. *And be it enacted*, That it shall be the duty of all persons practicing veterinary medicine in this State to report immediately to said board all cases of contagious or infectious disease among the live stock which may come to their knowledge, and a failure to report for forty-eight hours after he or they shall come into such knowledge shall be deemed a misdemeanor, and on conviction thereof he or they shall be fined not exceeding $50 for each offense.

SEC. 8. *And be it enacted*, That it shall be unlawful for any person to inoculate any animal in this State with the virus of any infectious or contagious disease incident to animals, without the consent of the said Live Stock Sanitary Board, and that any person convicted of this offense shall be fined a sum not less than $1 [$100?] nor more than $500, in the discretion of the court.

SEC. 9. *And be it enacted*, That for the performance of the duties imposed on them by this act all constables, sheriffs, or deputy sheriffs, or other State officers, shall be paid as for the performance of similar duties under existing laws.

SEC. 10. *And be it enacted*, That it shall be the duty of all State's Attorneys to prosecute all persons accused of violating the provisions of this act, and to defend in all cases of appeals from appraisements.

SEC. 11. *And be it enacted*, That all rules and regulations formulated and issued by said board in pursuance of the powers hereby conferred on it shall have the force and effect of laws, and all violations of such rules and regulations shall be punished as misdemeanors are punished at common law, and all appraisements of animals to be slaughtered or of buildings to be destroyed shall be approved by said board before such animals are slaughtered or such buildings destroyed; and said board shall have the discretion to have such animals slaughtered or quarantined.

SEC. 12. *And be it enacted*, That any person who shall sell or otherwise dispose of an animal which he knows or has good reason to believe is affected with any contagious or infectious disease, or has been exposed thereto within ninety days, or shall permit the same to pass over or upon any public highway, street, lane, or alley, or to graze any unfenced lot or piece of ground without the consent of the said board, shall, on conviction thereof, be fined not less than $50 nor more than $100 for each animal so driven or exposed; such fine may be imposed by any justice of the peace of the city of Baltimore or county where the offense was committed.

SEC. 13. *And be it enacted*, That it shall be unlawful for any person or persons to wilfully expose any animal to others affected with a contagious or infectious disease, or to put or suffer to be put any healthy or unexposed animals of the same species into any stable or on any premises which have been declared to be infected until the same shall have been declared to be free from such infection by the said veterinary inspector with the consent of said board; any person or persons convicted of violating any of the provisions of this section shall be subject to a fine of not less than $1 [$100?] nor more than $500 for each offense; and the animal or animals so introduced into such infected stables or premises shall be slaughtered by said veterinary inspector without appraisement or compensation from the State.

SEC. 14. *And be it enacted*, That in the event of any building or buildings, sheds, stables, stable furniture, hay, straw, or fodder being reported to the said board by said inspector as being incapable of proper disinfection, the said board may, in its discretion, have such buildings and articles so infected appraised, as hereinafter provided for the appraisement of animals, and destroyed.

SEC. 15. *And be it enacted*, That in the event of its being deemed necessary for the said Veterinary Inspector and said board, to prevent the spread of contagious or infectious disease, to cause any animal or animals so diseased or exposed to such disease to be slaughtered, the value of such animal or animals shall be appraised in their then condition by two sworn appraisers, to be sworn before any officer authorized to administer oaths and affirmations, one of which appraisers to be appointed by the owner or custodian of such animals, the other by the said Veterinary Inspector, or in case the said owner or custodian of such animals shall neglect or refuse to name such appraiser, then by two appraisers, to be appointed by said inspector, who, in case of disagreement, shall call in a third, which appraisement, when approved by said board, shall be filed with the Comptroller; and the Comptroller shall forthwith issue his warrant to the Treasurer for the amount of said appraisement, in favor of said owner or owners, and if the owner or owners of such animals or buildings or other property shall not be satisfied with the amount of said appraisement, he or they may, within sixty days, appeal to the circuit court of the county, or to the Baltimore City court, if such animals or buildings are within the city of Baltimore, by filing in said court a copy of the appraisement with a petition for a writ of subpœna against the said Veterinary Inspector, which appeals shall be acted on by said court in the same manner as appeals from justices of the peace.

SEC. 16. *And be it enacted*, That said board is hereby authorized and empowered to agree with the Bureau of Animal Industry of the Department of Agriculture of the United States, or other properly constituted authority of the United States, for cooperation in the work of eradicating any contagious or infectious disease among live stock in the State of Maryland, but such agreement shall provide that such work shall be under the control of the State authorities.

SEC. 17. *And be it enacted*, That in the event of an epidemic of contagious or infectious disease among the live stock of this State, it shall be the duty of the said board to appoint such assistants to said inspector as may be necessary to promptly suppress the same and to fix their pay.

SEC. 18. *And be it enacted*, That all diseased animals that, under the provisions of this act, shall be slaughtered at any slaughterhouse where meat is prepared for market shall be slaughtered under the supervision of the Chief Veterinary Inspector or his assistant, and it shall be the duty of said inspector to see that the carcasses and offal of such diseased animals, whether such disease is contagious or otherwise, are destroyed and not sold for food. Any inspector who shall corruptly pass as healthy a diseased animal shall, on conviction thereof, be fined not exceeding $500 and forfeit his commission.

SEC. 19. *And be it enacted*, That all acts or parts of acts inconsistent with this act be, and they are hereby, repealed, provided nothing herein shall affect the commissions or terms of office of the Chief Veterinary Inspector and members of said Sanitary Board appointed and confirmed at this session of the General Assembly, nor shall any prosecution now pending for violation of the acts of 1884, Chapter 157, and 1886, Chapter 80, abate, but the same shall be prosecuted to final judgment under the provisions of said acts as if this act had not been passed.

SEC. 20. *And be it enacted*, That this act shall take effect from the date of its passage.

MASSACHUSETTS.

The Board of Cattle Commissioners, in their report for 1899, say: "During the past year the Commission has acted under two sets of laws. Until May 25 it carried out the provisions of Chapter 491, Acts of 1894, as amended by Chapters 476 and 496, Acts of 1896; since then it has had the enforcement of the new law to deal with."

The new law referred to provides for the appointment by the Governor of a Board of Cattle Commissioners, who shall have the power to make from time to time orders and regulations concerning the extirpation, prevention, and suppression of contagious diseases among domestic animals; and it is their duty to make orders and regulations concerning the inspection and examination of animals. The board may establish quarantine stations wherein animals may be treated for the purpose of determining the characteristics of a specific contagion and the methods by which it may be disseminated or destroyed. Animals which are found to be affected with a contagious disease may be securely isolated or killed without appraisal or payment. If an animal so killed shall appear upon postmortem examination to be free from the disease for which it was condemned, "a reasonable sum therefor shall be paid to the owner by the Commonwealth." If such an animal is found to be affected with tuberculosis the full value at the time of condemnation is paid; but no sum exceeding $40 shall be paid. Indemnity does not extend to animals which have been brought into the State within six months or to cases where the owner has in any way contributed to the spread of the disease. Provision is made for arbitration in the matter of indemnity.

Animals imported into the State from infected places outside the State may be seized by the Board of Cattle Commissioners and held in quarantine so long as public safety may require; and the Board may kill such animals without appraisement or payment for the same.

Any board of health, or agent thereof, or any person who has reason to suspect the existence of any contagious disease in the State must, under penalty, give written notice to the board, who shall cause an inspection to be made. If such animals are found to be free from disease, a certificate of the fact is issued to the owner; if found diseased, or suspected as being diseased, quarantine measures are put in force.

Inspectors are appointed by the Board of Cattle Commissioners, who operate under the rules and regulations of the Board.

Owners using tuberculin are not entitled to indemnity for animals which react, unless the testing is done by the Board of Cattle Commissioners or by its direction.

LAW.

AN ACT relative to infectious diseases among domestic animals and to establish a new Board of Cattle Commissioners. (Approved May 25, 1899.)

Be it enacted, etc., as follows:

SECTION 1. The Governor, with the advice and consent of the council, shall appoint a Board of Cattle Commissioners of not more than three members whose terms of office shall begin on the first day of June in the year 1899, and who shall hold office as follows: One of said members for the term of three years, one for the term of two years, and one for the term of one year, and thereafter one of said members shall be appointed annually for the term of three years. The compensation of said commissioners shall not exceed $5 a day for each day of actual service, in addition to their traveling expenses necessarily incurred. Any member of the board may be removed by the Governor and council, who may revoke the commissions of the entire board when in their judgment the public safety may permit. Vacancies in the board by expiration of terms of service or otherwise shall from time to time be filled by appointment by the Governor with the consent of the council. The Board of Cattle Commissioners as now constituted shall cease to exist on the thirty-first day of May in the year 1899, and the duties now devolving by law upon said board shall thereafter be performed by the board created by this act.

SEC. 2. The Board of Cattle Commissioners may appoint a clerk to keep the record of its doings, who shall receive such compensation, not exceeding the sum of $500 a year, as it shall determine.

SEC. 3. The Board of Cattle Commissioners shall keep a full record of its doings and report the same to the Legislature on or before the tenth day of January in each year, unless an earlier report is required by the Governor. An abstract of its report shall be printed in the annual report of the State Board of Agriculture.

SEC. 4. The Board of Cattle Commissioners shall have power to make from time to time orders and regulations concerning the extirpation, prevention, and suppression of contagious diseases among domestic animals, or concerning the care and treatment or destruction of animals affected with or which have been exposed to any contagious disease.

SEC. 5. The Board of Cattle Commissioners shall from time to time make orders and regulations concerning the inspection and examination of animals, the quarantine and killing of animals affected with or which have been exposed to contagious disease, the burial or other disposal of their carcasses, and the cleansing and disinfecting of districts, buildings, or places where such contagion exists or has existed. Said board shall from time to time make and prescribe forms for records of inspectors, certificates of examinations, notices, and orders of quarantine, orders for killing and burial, and all returns to be made by inspectors which are provided for under the provisions of this act.

SEC. 6. The Board of Cattle Commissioners may establish hospitals or quarantine stations, with proper accommodations, wherein, under prescribed regulations, animals selected by such commissioners may be confined and treated for the purpose of determining the characteristics of a specific contagion and the methods by which it may be disseminated or destroyed, and it may direct inspectors to enforce and carry into effect all regulations made from time to time for that purpose.

SEC. 7. The Board of Cattle Commissioners may appoint from time to time officers, agents, and assistants whose appointment is necessary or expedient to carry out the purposes of this act, and may remove any and all of the persons so appointed. All such officers, agents, and assistants shall have the power and authority conferred upon inspectors under the provisions of Section 28 of this act, and shall receive such compensation as the board shall determine.

SEC. 8. When the Board of Cattle Commissioners or any of its members or agents, by examination of a case of contagious disease among domestic animals, is convinced that the public good requires it, the board, commissioner, or agent shall cause such animal or animals to be securely isolated, or shall cause it or them to be killed without appraisal or payment. Such order for killing shall be issued in writing by the board or any of its members, and may be directed to an inspector or other person, and shall contain such direction as to the examination and disposal of the carcass and the cleansing and disinfecting of the premises where such animal was condemned as the board or commissioner shall deem expedient. A reasonable sum may be paid out of the Treasury of the Commonwealth for the expense of such killing and burial. If it shall subsequently appear, upon postmortem examination or otherwise, that such animal was free from the disease for which it was condemned, a reasonable sum therefor shall be paid to the owner by the Commonwealth. Whenever any cattle condemned as afflicted with the disease of tuberculosis are killed under the provisions of this section, the full value thereof at the time of condemnation, not exceeding the sum of $40 for any one animal, shall be paid to the owner out of the Treasury of the Commonwealth, if such animal has been owned within the State six months continuously prior to its being killed: *Provided, however*, That such person shall not have, prior thereto, in the judgment of the board, by wilful act or neglect, contributed to the spread of tuberculosis; but such decision on the part of the commissioners shall not deprive the owner of the right of arbitration as hereinafter provided.

SEC. 9. Said board may make and issue rules and regulations for the guidance of inspectors of animals and provisions in the inspection of meat which shall conform with the rules and regulations of the United States Bureau of Animal Industry for the inspection of meat for export and for interstate commerce.

SEC. 10. Said board may examine under oath all persons believed to possess knowledge of material facts concerning the existence or dissemination, or danger of dissemination, of contagious diseases among domestic animals, or concerning any other matter within the provisions of this act, and each member of said board shall have, for any purpose of this act, all the powers vested in justices of the peace by Chapters 155 and 169 of the Public Statutes and acts in amendment thereof, to take depositions, to compel witnesses to attend and testify before said board, and to administer oaths. The fees for such witnesses for attendance and travel shall be the same as for witnesses before the superior court. All costs and expenses incurred in procuring the attendance of such witnesses shall be allowed and paid by the Commonwealth. Copies of the records of said board, or of any regulation or order issued by it or by any of its members under the provisions of this act, when duly certified by the secretary of said board, and any certificate by said secretary of the issuing, recording, delivering, or publishing of any such orders or regulations under the provisions of Section 13 of this act shall be competent evidence of such fact in any tribunal.

SEC. 11. Every cattle commissioner and inspector shall have power to call on sheriffs, constables, and police officers to assist him or them in the discharge of the duty provided for in this act, and it is hereby made the duty of sheriffs, constables, and police officers to assist such commissioner or inspector when requested to do so, and he or they shall have the same powers and protection while engaged in the discharge of his or their duties which peace officers have.

SEC. 12. When animals are transported within this State from places beyond its boundary lines, which places the Board of Cattle Commissioners deems to be infected, such animals may be seized and quarantined by the commissioners at the expense of the owners or consignees thereof so long as the public safety requires; and if, in their judgment, it is necessary to secure that safety they may cause such animals to be killed without appraisal of or payment for the same.

SEC. 13. All orders and regulations made by said board under the provisions of this act shall be spread upon the records of the board, and a copy thereof shall be sent to each inspector in the city or town to which the regulations or orders apply, and shall be published by such inspector in such manner as the orders and regulations shall prescribe.

SEC. 14. Whenever in any city or town the board of health or any member or agent thereof or any other person, except the members of the Board of Cattle Commissioners, who has knowledge of or has good reason to suspect the existence of any contagious disease among any species of domestic animals within the limits of this Commonwealth, or that any domestic animal is affected with any such contagious disease, whether such knowledge is obtained by personal examination or otherwise, shall immediately give written notice thereof to the Board of Cattle Commissioners or any of its members, agents, or inspectors, and for failure so to do shall be punished by a fine not exceeding $100: *Provided, however*, That no such notice shall be given in the city of Boston relating to the diseases known as glanders, farcy, and rabies, which diseases shall be cared for by the board of health of the city of Boston.

SEC. 15. Upon the receipt of such notice from any person the Board of Cattle Commissioners shall inspect or cause to be inspected by its authorized agents any such animal or animals; and if upon such inspection such board or such inspector suspects or has reason to believe that contagion exists the board or inspector shall proceed according to the provisions of Sections 23, 24, 25, and 26 of this act.

SEC. 16. When complaint is made on oath to any police, district, or municipal court, or to any magistrate authorized to issue warrants in criminal cases, that the complainant believes that any diseased animal or animals are kept or concealed in any particular building, place, or inclosure, the court or magistrate, if convinced that there is reasonable cause for such belief, shall issue a warrant to search for such animal or animals, and all such warrants shall be directed and executed as provided in Section 3 of Chapter 212 of the Public Statutes. If upon a hearing said court or magistrate determines that any such diseased animal or animals were so kept or concealed, the same shall be destroyed or disposed of by the Board of Cattle Commissioners or its authorized agent, and no compensation shall be paid to the owner or owners thereof. If the court or magistrate does not so determine, said animal or animals shall be returned to the owner.

SEC. 17. The mayor and aldermen of cities, except as provided in Chapter 250 of the acts of the year 1896, and the selectmen of the towns shall, within thirty ation.

. 18. Whenever the officers of a city or town neglect or refuse to carry into
the provisions of Section 17 of this act, such city or town shall be liable to
; a sum not exceeding $500 for each such refusal or neglect, and the Board
tle Commissioners shall have the power to appoint one or more persons to
h inspector or inspectors for such city or town. Said board shall also have
wer to remove any inspector of animals appointed under the provisions of
t whenever such inspector neglects or refuses to be sworn or, in the opinion
board, does not properly perform the duties of his office, and in such case
ard shall appoint another inspector to serve for the remainder of his term.
inspector appointed by said board shall be sworn faithfully to discharge the
of his office and shall receive such compensation, not exceeding the sum of
year each, as said board shall determine. Such compensation shall be paid
city or town for which he is appointed.

. 19. Every inspector shall keep a record of all inspections made by him and
ings thereon, and shall make regular returns of all such inspections to the
of Cattle Commissioners. Such records and returns shall be made in such
and at such times as the Board of Cattle Commissioners shall direct, and said
shall have at all times the right to inspect said records and make copies
f.

. 20. The duties of inspectors appointed under the provisions of Chapter 491
acts of the year 1894 and of acts in amendment thereof, except so far as
elate to the duties, rules, and regulations of the Board of Cattle Commission-
defined in this act, shall hereafter be performed by the various cities and
; and said boards of health shall have full power in all matters included
the provisions of said Chapter 491 and of acts in amendment thereof, except
he Board of Cattle Commissioners, in accordance with the provisions of this
far as not otherwise provided in Section 14 relating to glanders, farcy, and
in the city of Boston, shall have full control and authority in all matters
ng to contagious diseases among domestic animals.

. 21. Every inspector appointed under the provisions of this act shall carry
nd enforce all regulations and orders directed to him, under the provisions
act, by the Board of Cattle Commissioners or by any of its members.

missioners or any of its members: *Provided, however*, That nothing in this act shall apply to the inspection of sheep or swine slaughtered in wholesale slaughtering establishments or to the obtaining of a license for the slaughtering of such sheep or swine.

SEC. 23. Whenever an inspector is convinced by examination of any neat cattle, sheep, or swine that such animals are free from contagious disease, he shall deliver to the owner or to the person in charge thereof a written certificate of their condition, signed by him, which certificate shall be in such form as the Board of Cattle Commissioners shall prescribe, and shall cause a copy of said certificate to be entered upon his records.

SEC. 24. Whenever any inspector, upon an examination of any domestic animal, suspects or has reason to believe that such animal is affected with a contagious disease, he shall immediately cause said animal to be quarantined or isolated upon the premises of the owner or of the person in whose charge it is found, or in such other place or inclosure as he may designate, and shall take such other sanitary measures to prevent the spread of such disease as may be necessary or as shall be prescribed by any order or regulation issued by the Board of Cattle Commissioners. Such inspector shall also deliver to the owner or person in charge of such animal, or to any person having an interest therein, a written notice or order of quarantine signed by him, which notice or order shall be in such form as the Board of Cattle Commissioners shall prescribe, and he shall cause a copy of said notice to be entered upon his records.

SEC. 25. Such notice or order may be served by an officer authorized to serve civil process, or it may be delivered by the inspector to the owner or person having an interest in the animal concerned, or to the person in charge of such animal, or may be left at the last and usual place of abode of such owner or person, or may be posted upon the premises where said animal is quarantined or isolated, and a copy of said notice or order of quarantine, with the return of said officer or inspector thereon that such service has been made, shall be competent evidence in any court that such quarantine has been imposed. Whenever any animal has been quarantined by an inspector under the provisions of this act, such animal shall remain in quarantine until the further order of the Board of Cattle Commissioners or of any of its members.

SEC. 26. When any animals are quarantined, collected, or isolated under the provisions of this act upon the premises of the owner or of the person in possession thereof at the time such quarantine is imposed, the expense thereof shall be paid by such owner or person in possession; but whenever specific animals are quarantined or isolated, under the provisions of Section 6 or Section 24 of this act, more than ten days upon such premises, as suspected of being affected with a contagious disease, and the owner is forbidden to sell any of the product thereof for food, or whenever any animals are quarantined, collected, or isolated on any premises other than those of such owner or person in possession thereof, the expense of such quarantine shall be paid by the Commonwealth.

SEC. 27. Whenever any inspector has caused any domestic animal to be quarantined, as provided in Section 24 of this act, he shall immediately give a written notice thereof, together with a copy of the order of quarantine, to the Board of Cattle Commissioners, and shall give such information to no other person.

SEC. 28. For the purpose of inspecting or examining any animal under the provisions of this act any inspector, duly qualified, may enter any building or buildings or any part thereof, inclosure or inclosures, or other place where any such animal is kept, and may examine or inspect the same. Any person who prevents, obstructs, or interferes with any such inspector, or other person having the power and authority conferred upon inspectors under this act, in the performance of any of his duties as provided herein, or who shall hinder, obstruct, or interfere with his making any such inspection or examination, or who shall secrete or remove any animal for the purpose of preventing the same from being inspected or examined under the provisions of this act, shall be punished by fine not exceeding $100, or by imprisonment in jail not exceeding sixty days, or by both such fine and imprisonment.

SEC. 29. It shall be the duty of inspectors, in addition to their inspections of animals for contagious diseases, to examine the barns, stables, or other inclosures in which neat cattle are kept, with reference to their situation, cleanliness, light, ventilation, and water supply, and the general condition and cleanliness of the said neat cattle, and to make a detailed report, with names and residences of owners, to the Board of Cattle Commissioners, who shall embody the same in its annual report to the Legislature.

SEC. 30. One-half of the compensation of inspectors of animals appointed under the provisions of Sections 17 and 18 of this act, in cities and towns of less than $2,500,000 valuation, shall hereafter be paid from the Treasury of the Commonwealth: *Provided, however*, That no inspector shall receive from the Commonwealth more than $250 as compensation in any one year.

SEC. 31. Every inspector of animals appointed under the provisions of this act shall carry out and enforce all lawful regulations, orders, and directions of the Board of Cattle Commissioners or of any of its members, and any such inspector who neglects or refuses to carry out the same shall be punished by a fine not exceeding $500 for every such offense.

SEC. 32. Every animal quarantined or isolated by order of the Board of Cattle Commissioners or any of its members or agents, or of any inspector, in accordance with the provisions of this act, shall, during the continuance of such quarantine or isolation, be deemed to be affected with a contagious disease. Any person who shall knowingly break or authorize or cause to be broken any quarantine imposed under the provisions of this act, or who, contrary to such order of quarantine or isolation, shall knowingly remove, authorize, or cause to be removed from any building, place, or inclosure where the same is quarantined or isolated any animal, or who, contrary to any order or notice of quarantine, shall knowingly place or cause or authorize to be placed any other animal or animals within a building, place, or inclosure where any animal or animals are quarantined, or in contact therewith, or who shall knowingly conceal, sell, remove, or transport, or knowingly cause or authorize to be concealed, sold, removed, or transported any animal, knowing or having reasonable cause to believe that such animal is affected with a contagious disease, or who shall knowingly authorize or permit any such animal to go at large upon any way, street, or highway within the limits of this Commonwealth, or who shall knowingly bring or authorize or permit to be brought from any other country, State, district, or Territory into this Commonwealth any animal which is affected with or has been exposed to any contagious disease, or who shall disobey any lawful order or regulation of the Board of Cattle Commissioners or any of its agents, or of any inspectors in the discharge of his or their duty under the provisions of this act, shall be punished by fine not exceeding $500, or by imprisonment not exceeding one year, or by both such fine and imprisonment.

SEC. 33. If the owner who is entitled to compensation under Section 8 of this act for an animal destroyed as being affected with tuberculosis and the commissioner condemning the same, can not agree as to the value of the animal so condemned the value shall be determined by arbitrators, one to be selected by the commissioner and one to be selected by the owner; or if the owner neglects or rerefuses for twenty-four hours to select an arbitrator the one already selected shall select a second, and if these two can not agree a third shall be selected by the two arbitrators first selected. Such arbitrators shall be sworn faithfully to discharge the duties of their office, and shall determine the value of such animal according to the provisions of Section 8; and the full value so determined shall be paid to the owner as provided in said section. Either party aggrieved by the doings of the Cattle Commissioners or any of its members under the provisions of said Section 8, or by the award of such arbitrators, may petition the superior court for the county where such animal was killed, or for the county of Suffolk, to have the damages assessed. Such petition shall be by or against the Board of Cattle Commissioners, and a copy thereof shall be served upon the defendant, or, if the petition is against said Board of Cattle Commissioners, upon one of the commissioners, in the same manner as is provided for the service of other civil process. The petition shall be filed in the clerk's office of the superior court for said county within thirty days after the killing of such animal or animals. The petition shall be subject to the provisions of Section 69 of Chapter 167 of the Public Statutes, and a trial may be had thereon at the bar of the court, in the same manner as other civil cases are tried. If upon such trial it shall be determined that such animal was not affected with the disease for which it was condemned, reasonable compensation may be recovered therefor, and if the owner recovers damages in excess of the amount previously awarded to him by the arbitrators or allowed him by the commissioners he shall recover his costs; otherwise he shall pay costs. The damages, costs, and expenses incurred by the commissioners in prosecuting or defending any such action shall be paid by the Commonwealth.

SEC. 34. Every person who kills or causes to be killed, with the consent of the owner or person in possession thereof, any animal under suspicion that the same is affected with or has been exposed to a contagious disease, or who upon the inspection of the carcass thereof finds or is of the opinion that the same is affected with a contagious disease, shall notify such owner or person in possession thereof of the existence of such disease, and shall also immediately notify the Board of Cattle Commissioners, its agent or inspector, of the same and of the place where the animal was found, the name of the owner or owners or person or persons in possession thereof, and of the disposal made of such carcass. Any person violating the provisions of this section shall be subject to the same penalties as are provided in Section 28 of this act.

SEC. 35. Contagious diseases under the provisions of this act shall include glanders, farcy, contagious pleuropneumonia, tuberculosis, Texas fever, foot-and-mouth disease, rinderpest, hog cholera, rabies, anthrax or anthracoid diseases, sheep scab, and actinomycosis.

SEC. 36. Any person who fails to comply with a regulation made or an order given by the Board of Cattle Commissioners or by any of its members, in the discharge of its or his duty, shall be punished by a fine not exceeding $500 or by imprisonment not exceeding one year.

SEC. 37. Prosecutions under this act shall be instituted and maintained in the county where the offense was committed.

SEC. 38. No Texan, Mexican, Cherokee, Indian, or other cattle which the Cattle Commissioners decide may spread contagious disease shall be driven, contrary to any order of the Board of Cattle Commissioners, on the streets of any city, town, or village, or on any road in this Commonwealth, or outside the stock yards connected with any railroad in this Commonwealth.

SEC. 39. In all stock yards within this Commonwealth said Texan, Mexican, Cherokee, Indian, or other cattle which the commissioners decide may spread contagious disease shall be kept in different pens from those in which other cattle are kept.

SEC. 40. Any person or persons violating the provisions of the two preceding sections shall be punished by a fine of not less than $20 nor more than $100.

SEC. 41. Courts of equity in term time or vacation may, by injunction or other proper order, upon application of the Board of Cattle Commissioners, enforce or restrain violations of the provisions of this act.

SEC. 42. The use of tuberculin as a diagnostic agent for the detection of the disease known as tuberculosis in domestic animals shall be restricted to cattle brought into the Commonwealth from any point without its limits and to all cattle at Brighton, Watertown, and Somerville: *Provided, however*, That tuberculin may be used as such diagnostic agent on any animal or animals in any part of the State on the consent in writing of the owner or person in possession thereof, and upon any animals condemned as tuberculous upon physical examination by a competent veterinary surgeon.

SEC. 43. No person having animals tested with tuberculin shall be entitled to compensation from the Treasury of the Commonwealth for any animals which react to the tuberculin test unless such testing be done by the Board of Cattle Commissioners or by its authorized agent acting as such at the time of the tests, and such testing shall be subject to the supervision and control of the Board of Cattle Commissioners.

SEC. 44. No compensation shall be allowed by the Commonwealth to any owner or owners of condemned cattle who have failed to comply with any and all reasonable regulations in regard to cleanliness, ventilation, light, disinfection, and water supply which may have been imposed by the Board of Cattle Commissioners. Any owner or owners of cattle who shall refuse to comply with any of such regulations shall be punished by fine not exceeding $50 for each offense.

SEC. 45. The existing Board of Cattle Commissioners shall, until the appointment of the new board authorized by this act, exercise the powers and discharge the duties conferred and imposed by this act upon the Board of Cattle Commissioners, and thereafter the new Board of Cattle Commissioners shall exercise said powers and discharge said duties.

SEC. 46. No expense shall be incurred and no money expended under this act in excess of the appropriations made therefor.

SEC. 47. Sections 1 to 9, both inclusive, 27, 29, 30, 34 to 48, both inclusive, and 50 to 58, both inclusive, of Chapter 491 of the year 1894; Sections 1, 2, 9 to 12, both inclusive, and 14 of Chapter 496 of the acts of the year 1895; Chapter 276 of the acts of the year 1896; Chapter 499 of the acts of the year 1897; Chapter 451 of the acts of the year 1898, and all other acts and parts of acts inconsistent herewith are hereby repealed.

PROCEEDINGS AND REGULATIONS.

June 12 the board sent the following letter to the mayors of cities and selectmen of towns:

COMMONWEALTH OF MASSACHUSETTS,
BOARD OF CATTLE COMMISSIONERS,
Boston, June 12, 1899.

DEAR SIRS: Herewith find a copy of Chapter 408 of the acts of 1899. This act recodifies the laws relating to the contagious diseases of animals.

You will see by Section 17 that there shall be appointed, within thirty days after the passage of this act and thereafter annually in the month of March, an inspector or inspectors of animals. Will you therefore immediately appoint an inspector of animals, or more than one if you think it necessary?

In most cities and towns, it seems to us, one inspector of animals is sufficient.

You will further note that such appointments are subject to the approval of the Board of Cattle Commissioners.

This board prefers that a competent veterinary surgeon be appointed to this position when one resides in the locality and his services can be procured. Any unfit appointees will be rejected by this board.

You will please notify the Board of Cattle Commissioners at once upon making the appointment.

Section 20 provides that the licensing of slaughterhouses and the inspection of animals killed for food, as provided for in Chapter 491, acts of 1894 and acts in amendment thereto, shall hereafter be attended to by local boards of health.

AUSTIN PETERS, *Chairman*,
LEANDER F. HERRICK, *Secretary*,
CHARLES A. DENNEN,
Board of Cattle Commissioners.

The work relative to Tuberculosis is classified by the board under the following heads:

1. The supervision of the traffic in live cattle brought into the State.
2. A general inspection, the examination of cattle quarantined as diseased by the local inspectors in the various cities and towns, and the payment for those found to be infected with tuberculosis.
3. Testing entire herds for the purpose of permanently eradicating tuberculosis from the premises.

Under the first head are the cattle brought into the State through the quarantine yards at Watertown, Brighton, and Somerville and those brought in on permits to other points.

The first step necessary for continuing the control of the cattle business was to readopt the order of the previous board; therefore, at a meeting of the Board of Cattle Commissioners, held June 26, the following order was adopted:

COMMONWEALTH OF MASSACHUSETTS,
BOARD OF CATTLE COMMISSIONERS,
Boston, June 26, 1899.

To all persons whom it may concern:

By virtue of the power and authority in us vested by law, and especially under the provisions of Chapter 408 of the acts of the year 1899, you are hereby notified that tuberculosis, which is a contagious disease, and is so recognized under the laws of this Commonwealth, exists among cattle of the several States and Territories of the United States, the District of Columbia, and Canada, and such localities are, in the opinion of this board, infected districts.

You are hereby further notified that, in order to prevent the importation of diseased animals, and as a means of suppressing such diseases within this Commonwealth, this board has passed the following order:

First. No neat cattle brought from any State or Territory of the United States, the District of Columbia, Canada, or any other country without the limits of this Commonwealth, shall be brought within the limits of this Commonwealth, except for delivery directly to the Union Stock Yards in the town of Watertown, the Boston and Albany Stock Yards in Brighton, within the city of Boston, or the premises of the New England Dressed Beef and Wool Company in the city of Somerville, except upon a permit signed by the Board of Cattle Commissioners or some one of its members; and no neat cattle so brought for delivery at any of said points shall be unloaded, except in case of accident, at any point other than the said Boston and Albany Stock Yards in Brighton, the Union Stock Yards in Watertown, or the New England Dressed Beef and Wool Company in Somerville.

Second. All neat cattle brought within the limits of this Commonwealth from any place designated in paragraph 1 hereof, except for delivery as provided in the preceding paragraph, must be accompanied by a permit issued by this board or some member thereof; and you are hereby forbidden to receive for transportation animals other than those designated in such permit.

Third. If, for any cause, any such neat cattle are received by any of your agents within the limits of this Commonwealth at any other than the Union Stock Yards in Watertown, the Boston and Albany Stock Yards in Brighton, or the New England Dressed Beef and Wool Company in Somerville, not accompanied by a permit, as provided in paragraph 2 hereof, you will immediately notify this office, giving the place where said animals were received for shipment, the name of the consignee, and destination of said animals.

You will not remove said animals or permit them to be removed from the car or vehicle in which they are contained without a permit from this board or some member thereof; except that if, by reason of the crowded condition of the car or because of the long confinement of said animals within the same, or for accident or otherwise, it is deemed expedient by you or your agent to unload the same, such animal or animals may be removed by you from said car or vehicle without such permit; but in such case you will notify this office, and you will not allow said animal or animals to go out of the possession of your agent or off of your premises where said animals are unloaded except upon obtaining such permit.

Fourth. All neat cattle brought within the limits of the premises to Brighton, Watertown, and Somerville, designated in paragraph 1 hereof, are hereby declared to be quarantined.

Fifth. Any person violating the provisions of this order will be punished as provided in Section 36 of Chapter 408 of the acts of the year 1899.

This order shall take effect upon the 26th day of June, 1899.

AUSTIN PETERS, *Chairman*,
LEANDER F. HERRICK, *Secretary*,
CHARLES A. DENNEN,
Board of Cattle Commissioners.

The Board of Cattle Commissioners require all persons bringing cattle into this State, except calves under 6 months old or beef cattle for immediate slaughter, to have them tested with tuberculin prior to shipment or after arrival in this State, unless special permission to the contrary is given by this board.

All persons shipping or driving cattle into Massachusetts must have a permit, unless sent by rail to one of the quarantine stations at Brighton, Watertown, or Somerville.

In regard to the admission of cattle from without the State, it is the opinion of this board that the quarantine stations should be maintained with rules and regulations still more stringent; otherwise this market would be flooded with tuberculous cattle from other States, for which the purchasers would soon after look to the Commonwealth for payment.

While the board does not feel that the work of testing out-of-the-State cattle is by any means perfect, yet it does feel that there has been a great improvement over the old methods of admitting all classes of cattle within the borders of the State.

Many of the buyers affirm that they have had less trouble with their cattle during the last two or three years than ever before; therefore the board believes it to be good judgment not to relax this work in the slightest degree.

The second portion of the work includes that coming under the general inspection made by the local inspectors.

An order for an examination of the neat stock in the State and the premises on which they were kept was sent out in the following letter to inspectors, October 1:

To the Inspectors of Animals:

The Board of Cattle Commissioners hereby directs that you shall make a general inspection of the neat stock in your town, and incidentally other farm animals, to commence at once and to be completed on or before the 15th day of November.

The law under which you work is Chapter 408 of the Acts of 1899, a copy of which will be sent you, together with the necessary papers for carrying it out. The portion contained in Sections 19 to 32 relates especially to your duties, and you should make yourself familiar with it. You will also be provided with a book to carry out the provisions of Section 23, with books to carry out the provisions of Section 29, and a quarantine book for cases of tuberculosis or other contagious diseases among animals.

Cattle are not to be quarantined as tuberculous unless they show enough evidence of disease to make it possible to condemn them on a physical examination, except where the udder of a milch cow is tuberculous; on no account are cattle to be quarantined simply for the purpose of testing them with tuberculin, when they show no physical signs of disease. The only exception to this rule is, that it is the duty of inspectors to quarantine all cattle brought into the State without a permit from this board, until the owner furnishes the cattle commission with satisfactory certificates of a tuberculin test. Before quarantining any cattle, you should decide upon what cows you are going to quarantine, then send the papers on a number at once, so our agent can see them all in one visit.

By order:

AUSTIN PETERS, *Chairman*,
L. F. HERRICK, *Secretary*,
C. A. DENNEN,
Massachusetts Board of Cattle Commissioners.

The present policy of the Massachusetts Board of Cattle Commissioners follows the plan laid down in the resolutions[1] given above, outside of the matter of slaughterhouse inspection.

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[1] The resolutions referred to, as translated by Dr. V. A. Nörgaard, are as follows:

V.—*The prevention of tuberculosis among domestic animals.*

1. All meat inspectors must report every case of tuberculosis which results in total or partial condemnation of the carcass, and all such which are deemed to have been especially effective in disseminating the infection.
2. Investigation as to the origin of the animal in question.
3. Examination of the herd to which it belonged. All cattle showing clinical symptoms of tuberculosis should be branded or otherwise marked.
4. Separation and slaughter in from one to three months of all animals which must be considered dangerous in spreading the disease, under penalty of losing all right to indemnification, but under promise of indemnity in full in case of mistake in the diagnosis.
5. Thorough disinfection of the stable and premises where the affected animals have been kept.
6. Careful removal and destruction of all affected parts of the carcass.
7. Quarterly inspection of all affected herds.
8. Milk from cows with tuberculosis mammitis must be used for either man or animal in boiled condition only.
9. Skim milk from cooperative dairies must be returned or sold in sterilized condition only.
10. Absolute destruction of all separator residues.
11. Permanent supervision, in regard to tuberculosis, with all dairies which make a specialty of providing milk for children and invalids.

VI.—*The utilization of the flesh and milk of tuberculous animals.*

OF THE FLESH.

When a general compulsory inspection of all food animals, before and after slaughter, has been inaugurated, the following rules are to be enforced in order to

The methods formerly pursued by the State have been found too extravagant and expensive. Similar measures were tried in Belgium, and proved there to be too costly.

During the past year cows that showed marked physical evidence of tuberculosis were condemned and killed; a few have been passed as fit for beef, but most of them were only fit to be rendered. When cows can be condemned on a physical examination the work can be done at a less cost than under the former system, when the agent tested cows with tuberculin and then reported the results to the office and received instructions which to kill and which to release.

Under the present system the agent examines, appraises, and kills a diseased cow all at one visit. This system seems to work satisfactorily, and very few complaints have arisen under it.

Cows with nodulated udders have been tested with tuberculin, as have also some doubtful cases; if they reacted they were destroyed.

Reducing the limit of value from $60 to $40 has resulted in a saving to the State. The appraisals have been very evenly made, and the average value, $22.50 per head, is much lower than it formerly was. The work of the local inspectors seems to be sufficient to protect the people from the milk of cows owned in Massachusetts which are sufficiently diseased to be a danger to the public health, besides which, the badly diseased cows are the greater sources of danger to others.

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eliminate the dangers which under certain circumstances might result from the consumption of flesh from tuberculous animals:

(1) In examining the carcasses of slaughtered animals it is necessary that all the professional inspectors follow certain rules which will insure that every case of tuberculosis is discovered and that the extent of the tuberculous lesions are ascertained.

(2) Of greatest importance is the unfailing discovery and the careful removal of the affected organs, together with their appendages.

(3) When tubercular centers are located in the flesh, the infected regions, as bounded by the surrounding lymph glands, are to be treated in the same way as the infected organs—that is, when it can be ascertained beyond a doubt that infection is limited to a certain region.

When the tuberculous alterations in the meat are confined to the lymph glands located therein, the muscle parts may be dissected away from the bones, joints, blood vessels, and lymphatics, and when cut in small pieces and thoroughly sterilized be offered for sale as food.

In the case of fat animals the melting out of the fatty tissue is allowed when care is taken to remove the tuberculous centers.

(4) In all cases of local tuberculosis, or in such where the generalization is limited in extent and confined to the internal organs, the meat may be offered for sale in raw condition. When, however, the tuberculous processes are of considerable extent, the meat should be sold under declaration.

(5) In all cases where there is pronounced emaciation or symptoms of recent generalization (swelling of the spleen and lymphatic glands or miliary tuberculosis of the spleen, liver, lungs, and kidneys), the whole of the meat, with exception of the melted fat, must be condemned as unfit for human food.

(6) In cases where the local character of tuberculosis and the harmlessness of the meat are doubtful (especially when there are tuberculous caverns and incipient derangement of nutrition), the whole of the meat is to be sterilized before being handed over as fit for food.

(7) The sterilized meat and the melted fat are to be sold under declaration.

OF THE MILK.

(1) Cows, goats, and other animals kept for dairy purposes must be subjected to regular veterinary control.

(2) The milk of tuberculous animals is not to be used for human food if the animals are emaciated or affected with tuberculosis of the udder.

(3) All emaciated animals and those suffering from tuberculosis of the udder should be destroyed without delay, as it is now done in Denmark and Sweden, and the owners indemnified by the State.

COMMONWEALTH OF MASSACHUSETTS,
BOARD OF CATTLE COMMISSIONERS.

PERMIT TO BRING NEAT CATTLE INTO MASSACHUSETTS, TO ALL POINTS EXCEPT THE QUARANTINE STATIONS AT BRIGHTON, WATERTOWN, AND SOMERVLILE.

BOSTON, MASS., ——, 1900.

Permission is hereby granted to ——, of ——, to bring from ——, to ——, Mass., —— on or before ——, 1900.

—— to be tested before shipment.
—— to be tested after arrival at destination.
—— for immediate slaughter.
—— returning from out of State pastures.

—— ——,
Commissioner.

THE PERMIT SHOULD ACCOMPANY WAYBILL.

All persons bringing cattle into this State, except calves under 6 months old or beef cattle for immediate slaughter, must have them tested with tuberculin prior to shipment or after arrival in this State, unless special permission to the contrary is given by this board.

Certificates of tuberculin test must be mailed at once directly to the Massachusetts Cattle Commissioners. Cattle brought into Massachusetts on permit are to remain in quarantine on owner's or consignee's premises until released by the inspector of animals of the town to which they are sent, or by order of the Board of Cattle Commissioners or one of its members or agents.

All persons shipping or driving cattle into Massachusetts must have a permit unless sent by rail to one of the quarantine stations named above.

The following is a notice to inspectors of the permit, as shown above, being issued to importers:

No. ——.

COMMONWEALTH OF MASSACHUSETTS,
BOARD OF CATTLE COMMISSIONERS,
Boston, ——, 1900.

—— ——, Inspector of Animals,
——, Mass.

DEAR SIR: We have this day issued a permit to —— —— to bring —— cattle to your town. Upon arrival of same you will please notify this board on blank provided below, and if they have not been tested with tuberculin we will order them quarantined until the owner has them so tested, at his expense and risk, by some one satisfactory to us.

Yours, truly,

—— ——,
Chairman.

——, MASS., ——, 1900.

TO MASSACHUSETTS CATTLE COMMISSIONERS:

I hereby notify you of the arrival of —— cattle brought into the State by Mr. —— ——, on permit issued by you as above stated.

Remarks: ——.

Yours, truly,

—— ——,
Inspector of Animals for said town.

MICHIGAN.

Michigan has a general law concerning contagious or infectious diseases of a malignant character, but no special law relative to bovine tuberculosis. The State Veterinarian is doing something against tuberculosis under this law, as will be seen by a reference to the regulations.

The work against contagious diseases of animals is done by a State Live Stock Sanitary Commission, consisting of three persons appointed by the Governor. The Governor also appoints a State Veterinary Surgeon.

The commission is "authorized and empowered to establish, maintain, and enforce such quarantine, sanitary, and other regulations as it may deem necessary."

It is made the duty of any person who has knowledge of the existence or the suspicion of existence of any contagious or infectious disease to report it to the commission. Upon the receipt of such information the commission or any member of it shall, if satisfied that such disease does exist, establish temporary quarantine and prescribe such regulations as will prevent the spread of the contagion or infection, and shall notify the State Veterinarian, who shall make an examination and report the result to the commission. The commission shall then prescribe rules and regulations for controlling the diseases and prescribe the lines of a quarantine district. The Governor establishes the quarantine by proclamation.

The commission is empowered to destroy affected or exposed animals after appraisement. A certificate of such appraisement is issued to the owner and the full amount is paid upon approval by the Governor. The right to indemnity does not extend to animals which may have been brought into the State in a diseased condition or which may come from a State or Territory where the disease with which the animals are affected exists, nor to animals brought into the State in violation of law or rules and regulations, or that were diseased or suspected of being diseased when they come into possession of the claimant.

It is made a misdemeanor to keep, sell, ship, drive, trade, or give away any animal having a contagious or infectious disease. It is also a misdemeanor to bring such animals into the State.

The Governor, when he has reason to believe that contagious or infectious diseases exist in other States or Territories, may issue a proclamation of quarantine in regard to such districts prohibiting the importation into Michigan of animals therefrom unless accompanied by a certificate of health.

The commission is empowered to cooperate with the Bureau of Animal Industry in the work of suppression and prevention of contagious diseases.

LAW.

AN ACT to provide for the appointment of a Live Stock Sanitary Commission and a State Veterinarian, and to prescribe their powers and duties, and to prevent and suppress contagious and infectious diseases among the live stock of the State. (Approved June 10, 1885. **Section 23 added by act approved May 13, 1887.**)

SECTION 1. *The people of the State of Michigan enact,* That a commission is hereby established which shall be known under the name and style of "The State Live Stock Sanitary Commission." The commission shall consist of three commissioners who are practical agriculturists and engaged in the live-stock industries of the State, who shall be appointed by the Governor, with the advice and consent of the Senate. One shall be appointed for the term of six years, one for the term of four years, and one for the term of two years, whose term of office shall commence on the second Tuesday of July of the year in which they are appointed and shall continue until their successors are appointed and qualified. And at each succeeding biennial session of the Legislature there shall be appointed in like manner one commissioner who shall hold his office six years, or until his successor is appointed and qualified. The Governor shall also appoint, with the advice and consent of the Senate, a competent and skilled veterinary surgeon for the State, who, at the time of such appointment, shall be a graduate in good standing of a recognized college of veterinary surgery, and who shall hold his office two years from the second Tuesday of July of the year he is appointed and until his successor is appointed and qualified. The Governor shall also appoint every two years thereafter a competent and skilled veterinarian having the qualifications above mentioned, whose term of office shall be for two years, or until his successor is appointed and qualified.

SEC. 2. Said commissioners and veterinary surgeon before they enter upon the duties of their office shall each take and subscribe the constitutional oath of office and file the same with the Secretary of State.

SEC. 3. Each commissioner shall receive the sum of $3 per day and necessary expenses for the time actually spent in the discharge of his duties; and the veterinary surgeon shall receive the sum of $5 per day and necessary expenses for time when employed.

SEC. 4. It shall be the duty of the commission to protect the health of the domestic animals of the State from all contagious or infectious diseases of a malignant character, and for this purpose it is hereby authorized and empowered to establish, maintain, and enforce such quarantine, sanitary, and other regulations as it may deem necessary.

SEC. 5. [As amended by Act No. 105, Public Acts, 1887.] It shall be the duty of any person who discovers, suspects, or has reason to believe that any domestic animal belonging to him or in his charge, or that may come under his observation belonging to other parties, is affected with any disease, whether it be a contagious or infectious disease, to immediately report such fact, belief, or suspicion to the Live Stock Sanitary Commission, or a member thereof.

SEC. 6. [Section 6 was repealed by Act No. 105, Public Acts, 1887.]

SEC. 7. The commission or any member thereof to whom the existence of any infectious or contagious disease of domestic animals is reported shall forthwith proceed to the place where such domestic animal or animals are and examine the same, and if in his or their opinion any infectious or contagious disease does exist he or they shall prescribe such temporary quarantine and regulations as will prevent the spread of the contagion or infection, and notify the State Veterinarian, who shall forthwith proceed to the place where said contagious or infectious disease is said to exist and examine said animal or animals and report his or their finding to the said commission, who then shall prescribe such rules and regulations as in their judgment the exigencies of the case may require for the effectual suppression and eradication of the disease, and for that purpose the said commission may list and describe the domestic animals affected with such disease and those which have been exposed thereto and included within the infected district or premises so defined and quarantined with such reasonable certainty as would lead to their identification, and no domestic animal liable to become infected with the disease or capable of communicating the same shall be permitted to enter or leave the district, premises, or grounds so quarantined, except by the authority of the commission. The said commission shall also, from time to time, give and enforce such directions, and prescribe such rules and regulations as to separating, mode of handling, treating, feeding, and caring for such diseased and exposed animals as it shall deem necessary to prevent the two classes of animals from coming in contact with each other, and perfectly isolate them from all other domestic animals which have not been exposed thereto and which are susceptible of becoming infected with the disease, and the said commission and veterinarian are hereby authorized and empowered to enter upon any grounds or premises to carry out the provisions of this act. When in the opinion of the commission it shall be necessary, to prevent the further spread of any contagious or infectious disease among the live stock of the State, to destroy animals affected with or which have been exposed to any such disease, it shall determine what animals shall be killed, and appraise the same, as hereinafter provided, and cause the same to be killed and the carcasses disposed of as in their judgment will best protect the health of domestic animals of the locality.

SEC. 8. When the commission shall have determined the quarantine and other regulations necessary to prevent the spread among domestic animals of any malignant, contagious, or infectious disease found to exist among the live stock of the State, and given their order as hereinbefore provided, prescribing quarantine and other regulations, it shall notify the Governor thereof, who shall issue his proclamation proclaiming the boundary of such quarantine and the orders, rules, and regulations prescribed by the commission, which proclamation may be published by written or printed handbills posted within the boundaries or on the lines of the district, premises, places, or grounds quarantined: *Provided*, That if the commission decide that it is not necessary, by reason of the limited extent of the district in which such disease exists, that a proclamation should be issued, then none shall be issued; but such commission shall give such notice as may to it seem best to make the quarantine established by it effective.

SEC. 9. Whenever the commission shall direct the killing of any domestic animal or animals, it shall be the duty of the commissioners to appraise the animal or animals condemned, and in fixing the value thereof the commissioners shall be governed by the value of said animal or animals at the date of appraisement.

SEC. 10. Whenever any live stock shall be appraised and killed by order of the commission, it shall issue to the owner of the stock so killed a certificate showing the number and kind of animals killed and the amount, in their judgment, to which the owner is entitled, and report the same to the Governor of the State, which certificate, if approved by the Governor, shall be presented to the Auditor-General, who shall draw his warrant on the State Treasurer for the amount therein stated, payable out of any money in the Treasury not otherwise appropriated.

SEC. 11. When any animal or animals are killed under the provisions of this act by order of the commission, the owner thereof shall be paid therefor the appraised value, as fixed by the appraisement hereinbefore provided for: *Provided*, The right of indemnity on account of animals killed by order of the commission under the provisions of this act shall not extend to the owners of animals which have been brought into the State in a diseased condition, or from a State, country, Territory, or district in which the disease with which the animal is affected, or to which it has been exposed, exists. Nor shall any animal be paid for by the State which may be brought into the State in violation of any law or quarantine regulation thereof, or the owner of which shall have violated any of the provisions of this act, or disregarded any rule, regulation, or order of the Live Stock Sanitary Commission or any member thereof. Nor shall any animal be paid for by the State which came into the possession of the claimant with the claimant's knowledge that such animal was diseased, or was suspected of being diseased, or of having been exposed to any contagious or infectious disease.

SEC. 12. Any person who shall have in his possession any domestic animal affected with any contagious and infectious disease, knowing such animal to be so affected, or after having received notice that such animal is so affected who shall permit such animal to run at large, or who shall keep such animal where other domestic animals not affected by or previously exposed to such disease may be exposed to its contagion or infection, or who shall sell, ship, drive, trade, or give away such diseased animal or animals which have been exposed to such infection or contagion, or who shall move or drive any domestic animal in violation of any direction, rule, or regulation, or order establishing and regulating quarantine, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more than $500 for each of such diseased or exposed animals which he shall permit to run at large, or keep, sell, ship, drive, trade, or give away in violation of the provisions of this act: *Provided*, That any owner of any domestic animal which has been affected with or exposed to any contagious disease may dispose of the same after having obtained of the State Veterinarian a certificate of health for such animal.

SEC. 13. Any person who shall knowingly bring into this State any domestic animal which is affected with any contagious or infectious disease, or any animal which has been exposed to any contagious or infectious disease, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $100 nor more than $5,000.

SEC. 14. Any person who owns or is in possession of live stock which is affected, or which is suspected or reported to be affected, with any infectious or contagious disease, who shall wilfully prevent or refuse to allow the State Veterinarian or commissioner or other authorized officer or officers to examine such stock, or shall hinder or obstruct the State Veterinarian or other authorized officer or officers in any examination of or in an attempt to examine such stock, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more than $500.

SEC. 15. Any person who shall wilfully violate, disregard, or evade, or attempt to violate, disregard, or evade any of the provisions of this act, or who shall wilfully violate, disregard, or evade any of the rules, regulations, orders, or directions of the Live Stock Sanitary Commission establishing and governing quarantine, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more than $500.

SEC. 16. The commission provided for in this act shall have power to employ at the expense of the State such persons and purchase such supplies and material as may be necessary to carry into full effect all orders by it given.

SEC. 17. The commissioners shall have power to call upon any sheriff, undersheriff, deputy sheriff, or constable to execute their orders, and such officers shall obey the orders of said commissioners; and the officers performing such duties shall receive compensation therefor as is prescribed by law for like services, and shall be paid therefor in like manner. And any officer may arrest and take before any justice of the peace of the county any person found violating any of the provisions of this act, and such officer shall immediately notify the prosecuting attorney of such arrest, and he shall prosecute the person so offending according to law.

SEC. 18. Whenever the Governor of the State shall have good reason to believe that any dangerous, contagious, or infectious disease has become epizootic in certain localities in other States, Territories, or countries, or that there are conditions which render such domestic animals from such infected districts liable to convey such disease, he shall by proclamation prohibit the importation of any live stock of the kind diseased into the State, unless accompanied by a certificate of health given by a duly authorized veterinary surgeon; and all such animals arriving in this State shall be examined immediately by the commission or some member thereof, and if he or they deem necessary he or they shall have said animals inspected by the State Veterinary Surgeon, and if, in his opinion, there is any danger from contagion or infection they shall be placed in close quarantine until such danger of infection or contagion is passed, when they shall be released by order of said commission, or some member thereof.

SEC. 19. For the purposes of this act each member of the Live Stock Sanitary Commission is hereby authorized and empowered to administer oaths and affirmations.

SEC. 20. This commission is hereby authorized and required to cooperate with any board or commission acting under any present or future act of Congress for the suppression and prevention of contagious or infectious diseases among domestic animals, and the same right of entry, inspection, and condemnation of diseased animals upon private premises is granted to the United States board or commission as is granted to the commission granted under this act.

SEC. 21. The commission shall make biennially a detailed report of its doings to the Governor, which report shall be transmitted to the Legislature at its regular biennial session.

SEC. 22 [as amended by Act No. 47, Public Acts of 1887]. This act shall be construed so as to include sheep and horses.

Ordered to take immediate effect.

SEC. 23. [Section 23 was added by act approved May 13, 1887.] Any railroad company, navigation company, or other corporation, or common carrier, who shall knowingly or wilfully violate, disregard, or evade any of the provisions of this act, or who shall wilfully violate, disregard, or evade any of the rules, regulations, orders, or directions of the Live Stock Sanitary Commission establishing or governing quarantine, or who shall evade or attempt to evade any quarantine proclamation of the Governor of this State declaring quarantine limits, shall forfeit and pay to the people of the State of Michigan not less than $500 nor more than $5,000 for each and every offense, and shall be liable for all damages caused to any neat cattle by its or his failure to comply with the requirements of this act.

This act is ordered to take immediate effect.

REGULATIONS.

The work of the Live Stock Sanitary Commission under the law is given in the following words from Dr. George W. Dunphy, State Veterinarian: "We have no special law in regard to tuberculosis, but the live stock sanitary laws of the State give the commission power to make their own regulations in regard to contagious diseases. Their regulations are about as follows: In case of any reports of suspected tuberculosis the State Veterinarian is instructed to apply the tuberculin test, and if any of the animals react to extent of 2 degrees above the highest temperature on the day prior to the injection of tuberculin they are destroyed by order of the commission, and should an animal so destroyed fail to show tubercular lesions the owner shall be paid full value for the animal; but in case the tubercular lesions are present (which is usually the case) the owner receives the nominal sum of $1, and is paid for killing and burying or burning the carcass. We always make a rigid and complete postmortem, and in at least 90 per cent of the cases where we have reactions the animals are found affected with the disease. We make exceptions to this rule in case of some exceptionally well-bred animals. They are placed in quarantine if the owner requests it, and the produce must be immediately removed from the dam at birth and fed on milk from healthy cows, and at the age of six months we subject them to the tuberculin test, and if they pass the test all right they are allowed to go at large or take their place in the healthy herd."

MINNESOTA.

The control of contagious diseases of domestic animals in Minnesota is under the State Board of Health and the local boards of health of cities, towns, and villages. Any of these boards, within their respective jurisdictions, may quarantine animals affected with or which have been exposed to contagious or infectious disease. Animals which are found to be affected or which have been exposed to contagion may be killed; such killing, however, to be under certain restrictions and conditions, as mentioned in Section 4 of the act below. Indemnity for any animal so killed, if found to be free of tuberculosis, shall be paid one-fifth by the town, village, or city and four-fifths by the State, at the cash value at the time of killing, as appraised by three disinterested persons.

The expenses of quarantine are divided between the State and the town, village, or city, or assessed against the owner if the quarantine is upon his premises.

The State Board of Health has power to prohibit the arrival or departure from the State and the towns, villages, and cities of any exposed or infected animal; also to adopt rules and regulations to enforce the authority given by the law. The Board is "expressly given authority to regulate or prohibit the shipment into this State of any domestic animal which, in the judgment of said Board, may endanger the public health."

The penalty for violation of the law or any rule or regulation made by the State Board of Health or the local boards of health is a fine of not less than $25 nor more than $100, or by imprisonment not less than thirty days nor more than ninety days. Local boards of health shall carry out the rules and regulations of the State Board of Health.

AN ACT to prevent the spread of contagious and infectious diseases among domestic animals in this State. (Approved April 23, 1897.)

Be it enacted by the Legislature of the State of Minnesota:

SECTION 1. Authority is hereby given to the State Board of Health and to the several local boards of health of the towns, villages, and cities of this State, to take all steps they may severally deem necessary to control, suppress, and eradicate any and all contagious and infectious diseases among any of the domestic animals in this State, and to that end said boards are hereby severally empowered, within their respective jurisdictions, to quarantine any domestic animal which is infected with any such disease or which has been exposed to infection therefrom; to kill any animal so infected, and, whenever deemed necessary by the State Board of Health, to kill any animal which has been exposed to the infection of any such disease; to regulate or prohibit the arrival in or departure from this State, and the towns, villages, and cities thereof, of any such exposed or infected animal, and at the cost of the owner thereof to detain any domestic animal found in violation of any such regulation or prohibition; to adopt all such rules and regulations as may be by such several boards deemed necessary or expedient to enforce the authority hereby given; and said State Board of Health is hereby expressly given authority to regulate or prohibit the shipment into this State of any domestic animal which, in the judgment of said board, may endanger the public health.

SEC. 2. Any person who knows of, or has reason to suspect, the existence of any contagious or infectious disease in any domestic animal shall forthwith give notice thereof to the local board of health of the town, village, or city where such animal is kept. Within twenty-four hours after any local board of health shall receive notice that any domestic animal is infected with any such disease, or has been exposed thereto, it shall give notice thereof in writing to the State Board of Health.

SEC. 3. All rules and regulations adopted by any board of health under the authority of this act shall be entered upon the minutes of said board and shall be published in the manner therein provided. All regulations now in force adopted by any board of health within this State, under authority of any law existing prior to the passage hereof, relating to the matters covered by this act and not in conflict with this law, are continued in force, and are hereby declared to be the rules and regulations of such several boards under this act until such times as others are adopted.

SEC. 4. No animal shall be killed by any of the boards herein mentioned until it shall first have been adjudged to be infected with a contagious or infectious disease, either by a duly authorized agent of the State Board of Health, or by a physician or veterinary surgeon selected by a local board of health; except that whenever in the judgment of the State Board of Health the control or eradication of a disease renders it advisable to do so, such board may order killed and buried, or otherwise destroyed, any domestic animal which has been exposed to a contagious or infectious disease, although at the time not infected therewith.

Provided, however, That cattle in this State shall not be adjudged infected with the disease of tuberculosis or condemned as being so infected except and until such animal has been subjected to at least two separate tuberculin tests to ascertain the presence of such disease, and the time of making such separate tests shall not be nearer together than two months and not farther apart than three months. In all cases to ascertain the presence of such disease the tests aforesaid shall be made by a duly licensed veterinary surgeon under authority of said board of health. And no milk or other products from such animals shall be sold or offered for sale.

SEC. 5. Whenever a domestic animal has been adjusted [adjudged] to be infected with a contagious or infectious disease, and has been ordered killed by the State Board of Health or by a local board of health, the owner or keeper of such animal shall be notified thereof, and within twenty-four hours thereafter he may file a protest with the board of health which has ordered such animal killed against the killing thereof, and shall therein state under oath that to the best of his belief such animal is not infected with any contagious or infectious disease; whereupon, said animal being killed notwithstanding such protest, a postmortem examination thereof shall be made by experts, appointed, one by the board of health, one by the owner, and one by the two already appointed, and if upon such examination said animal shall be found to have been entirely free from contagious or infectious disease, there shall be appointed three competent and disinterested men—one by the board of health, one by the owner of the animal killed, and the third by the two already appointed—to appraise it at its cash value immediately before it was killed, and the amount of such appraisal shall be paid to the owner of such animal, one-fifth part thereof by the town, village, or city where the animal was kept and four-fifths thereof by the State. All appraisements made under this act shall be in writing and signed by the appraisers and certified to by the local board of health and the State Board of Health, respectively, to the Governor of the State and to the treasurer of the several towns, villages, and cities wherein the animals appraised were kept. Whenever any such animal which has not been adjudged to be infected is killed by order of said board, but not by the owner or keeper thereof, a postmortem examination thereof shall be made by experts appointed as aforesaid, and if found to have been entirely free from any infectious disease the value of such animal shall be determined and paid for as hereinbefore specified, except, as in this section expressly provided, no compensation shall be paid for any animal killed by virtue of any authority given by this act.

SEC. 6. The expense of the killing and burial or destruction of any diseased animal ordered killed by either of the boards aforesaid shall be borne by the town, village, or city where such animal was kept. The expense of the quarantine of any infected animal, or of any animal that has been exposed to infection, shall be paid when taken from the possession of its owner or keeper, shall be borne one-fifth by the town, village, or city where the animal was kept and four-fifths by the State. When any animal is quarantined upon the premises of its owner or keeper, the expense thereof shall be borne by such owner or keeper. Whenever any animal is quarantined when being shipped into the State, the expense thereof shall be borne by its owner or keeper. Whenever the owner or keeper of any domestic animal is liable for any expenses incurred under this act, by any board of health in connection therewith, such board may have a lien on such animal for such expense, and may also maintain an action against such owner or keeper therefor.

SEC. 7. It is hereby made the duty of the several local boards of health in this State to carry out and enforce all orders and directions of the State Board of Health to them directed, and the State Board of Health may require any two or more local boards to act together for the purpose of enforcing any of the provisions of this act.

Whenever the rules and regulations of the State Board of Health made under authority of this act conflict with the rules and regulations made hereunder by any local board of health, those made by the State board shall supersede those made by the local board.

SEC. 8. The State Board of Health or any duly authorized agent thereof may examine or cause to be examined, under oath, all persons believed to possess knowledge of material facts concerning the existence or dissemination or danger of dissemination of disease among domestic animals; and, for this purpose, shall have all the powers vested in justices of the peace to take depositions and to compel witnesses to attend and testify.

SEC. 9. Any person violating any provisions of this act, or any rule or regulation made by the State Board of Health or by any local board of health, or any order made by any such board under the authority hereof, shall be guilty of a misdemeanor and be punished by a fine of not less than $25 or more than $100, or by imprisonment for not less than thirty or more than ninety days. Any member of any local board of health who shall neglect or refuse to carry into effect the provisions of this act, or who shall neglect or refuse to carry out any direction of the State Board of Health, or who shall neglect or refuse to enforce any rule or regulation made by the State Board of Health or by any local board of health under the authority hereof, shall be guilty of a misdemeanor and be punished by a fine of not less than $25 and not more than $100; and each and every day's neglect or refusal to perform any duty imposed upon him by this act shall constitute a separate and independent misdemeanor. Complaints for violating the provisions of this act, or for violating any rule or regulation made by any board of health under its authority, may be made by any member or authorized agent of any such board or by any citizen of this State.

SEC. 10. Whenever during the prevalence in the State of any contagious or infectious disease among domestic animals the owner shall post on his premises a notice forbidding all persons to enter any building or enclosure on said premises without permission from said owner, it shall be a misdemeanor to enter upon said premises, punishable by a fine of not less than $25 nor more than $100, or by imprisonment for not less than thirty nor more than ninety days.

SEC. 11. Whenever during the prevalence in the State of any contagious or infectious diseases among domestic animals the owner shall post on his premises a notice forbidding all persons not authorized by State or local boards of health to enter any building or enclosure on said premises without permission from said owner, it shall be a misdemeanor to enter upon said premises, punishable by a fine of not less than $25 nor more than $100, or by imprisonment for not less than thirty nor more than ninety days.

SEC. 12. The sum of $6,000, or so much thereof as necessary, is hereby annually appropriated for the payment of the expenses that may be incurred by the State in enforcing this act, such expenses to be approved by the State Board of Health and by the Governor.

SEC. 13. Chapter 200 of the General Laws of the State of Minnesota for 1885, as well as all other acts and parts of acts inconsistent with this act, are hereby repealed, except as to any actions now pending growing out of the enforcement of the same.

SEC. 14. This act shall take effect and be in force from and after its passage.

REGULATIONS.

[Please fill out and return at once—Infectious disease of animals. Minnesota State Board of Health—Office record No. ——.]

BLANK FOR REPORTING INFECTIOUS DISEASES AMONG ANIMALS.

[This form is to be used by health officers and by chairmen of local boards of health in reporting to the State Board of Health the existence of any infectious disease among animals within their jurisdiction.]

Date ——, ——.

County of ——, township of ——.

Name and post-office address of health officer or chairman of the local board of health making this report, —— ——.

Owner's name and address, ——.

Number of animals that have been exposed to infection, ——.

Number of animals of this kind on the farm, ——.

Number and kind of animals sick, ——.

Name of the disease from which the animal or animals are suffering, ——.

Prominent symptoms present, ——.

History of infection, ——.

What action has the local board taken, ——.

[Minnesota State Board of Health—Infectious diseases of animals.]

ORDER OF QUARANTINE FOR CATTLE SUSPECTED OF BEING TUBERCULOUS.

[Return promptly to the Veterinary Department of the Minnesota State Board of Health.]

City or town of ——, ——, 190—.

Description of cattle, ——.

Date of test, ——.

When quarantined, ——.

Where quarantined, ——.

Order of quarantine delivered to ——.

Cattle owned by ——.

Cattle in charge of ——.

Notice delivered or posted (date and hour), ——.

Remarks, ——.

ORDER OF QUARANTINE FOR CATTLE SUSPECTED OF BEING TUBERCULOUS.

[Original—(To be delivered to person or owner in charge).]

City or town of ——, ——, 190—.

To —— —— (owner or person in charge):

You are hereby ordered to isolate under quarantine, upon your premises, the following-described cattle, ——.

These cattle are suspected of having tuberculosis, an infectious disease under the law. You are forbidden to violate, in any respect, the conditions of quarantine (see other side of this order).

You are warned of the danger of using any food product from these animals, and are forbidden to sell or otherwise dispose of any such product during quarantine.

[On back of order.]

MINNESOTA STATE BOARD OF HEALTH.

The following rules were adopted by the Minnesota State Board of Health April 12, 1898, and apply to animals hereby quarantined:

All cattle which show symptoms of tuberculosis must be quarantined at once and the entire herd tested with tuberculin.

The owner shall be given the option of having his cattle which have reacted killed under inspection or continued under quarantine for a period not exceeding three months.

All cattle which give reactions on second test must be killed within one month after date of second test, and the stable must be cleaned and disinfected thoroughly before quarantine may be released.

Cattle that have reacted under tuberculin test may be taken out of quarantine for slaughter or other purposes only after due notice to the local health officer and upon written permission from the State Board of Health, and may be killed only in the presence of an authorized inspector of the local or State Board of Health.

The State Board of Health will furnish the necessary tuberculin for this work, but only to local health officers or upon written request from local health officers.

Violation of quarantine defined.

It shall be deemed a violation of quarantine for any person to knowingly remove, authorize, or cause to be removed, without written permission from the State Board of Health, any animal quarantined on account of tuberculosis, from the building, place, or inclosure wherein it was quarantined.

It shall be deemed a violation of quarantine for any person to knowingly place, cause, or authorize to be placed, without written permission from the State Board of Health, any animal or animals subject to tuberculosis, in the building, place, or inclosure where animals are quarantined on account of said disease.

It shall also be deemed a violation of quarantine for any person to knowingly dispose of, authorize, or cause to be disposed of, any butter, meat, milk, or other product, from cattle in quarantine.

AN ACT to prevent the spread of contagious and infectious diseases of domestic animals in this State. (Act of 1897.)

SECTION 9. Any person violating any provision of this act or any rule or regulation made by the State Board of Health, or by any local board of health or any order made by any such board under the authority thereof, shall be guilty of a misdemeanor, and be punished by a fine of not less than twenty-five (25) or more than one hundred (100) dollars, or by imprisonment for not less than thirty (30) or more than ninety (90) days.

[Infectious disease of animals—Minnesota State Board of Health—Office record No. ——.]

BLANK FOR RECORDING TEST WITH TUBERCULIN.

[Use one of these blanks for each animal tested. Fill out carefully all details asked for in these blanks. Follow instructions on back for use of tuberculin.]

Township, ——; county, ——.

Name and post-office address of chairman of local board of health, ——.

Owner's name and address, ——.

Name and number of animal tested, ——.

Description of animal: Age, ——; sex, ——; color, ——; condition, ——; weight, ——; breed, ——; markings, ——.

History of infection, ——.

Symptoms, ——.

Date of injection, ——, hour 10 p. m.; dose, —— c. c.

Temperatures.

DAY OF INJECTION.		DAY AFTER INJECTION.	
Date, ——.		Date, ——.	
8 a. m., ——.	2 p. m., ——.	6 a. m., ——.	2 p. m., ——.
10 a. m., ——.	6 p. m., ——.	8 a. m., ——.	4 p. m., ——.
	8 p. m., ——.	10 a. m., ——.	6 p. m., ——.
		12 m., ——.	8 p. m., ——.
			10 p. m., ——.

Watered at —— each day.

Stable temperatures (hot, cool, or pleasant): Day of injection, ——; day after injection, ——.

Diagnosis (non-tuberculous, suspicious, or tuberculous), ——.

Postmortem record or remarks, ——.

Action taken by local board, ——.

(Signature of veterinarian who made test) —— ——,

(Address) ——.

MISSISSIPPI.

Mississippi has no law relating in any manner to bovine tuberculosis.

MISSOURI.

The situation with reference to bovine tuberculosis in Missouri is best stated in the language of Mr. J. R. Rippey, Secretary of the State Board of Agriculture, which is as follows: "We have no statute in this State especially applicable to tuberculosis. Section 10551 of the Revised Statutes of 1899 authorizes the Board of Agriculture to formulate regulations governing the movement into this State of affected animals. Under this provision the Board formulated regulations, which were promulgated by the Governor the 18th day of June last. These regulations, however, were clearly defective, and they were probably illegal from the fact that they discriminated against breeding cattle, while all other kind of cattle were admitted without hindrance; and they were ineffective from the fact that all a shipper had to do from any locality quarantined against was to claim that his cattle were dairy cattle or stock cattle and not intended for breeding purposes, and no tuberculin test was required. By reason of these defects the proclamation was suspended by a recent action of the board and tuberculosis quarantine awaits future action."

MONTANA.

No special law relative to bovine tuberculosis is on the statutes of Montana, but this disease is dealt with under the general law concerning contagious and infectious diseases of domestic animals.

Under this general law the Governor appoints a State Veterinary Surgeon, whose duties are "to investigate all cases of contagious and infectious diseases among cattle, horses, mules, and asses in this State" which may be brought to his knowledge; to inspect animals so diseased which may be brought into the State from other States or Territories against which the Governor has proclaimed a quarantine.

In all cases of contagious or infectious diseases the State Veterinary Surgeon may quarantine the premises. If the disease becomes epidemic, he must notify the Governor, who issues a proclamation forbidding the removal of any animal of the kind diseased from the quarantine district without a certificate from the State Veterinary Surgeon.

The State Veterinary Surgeon may, under certain restrictions, order the slaughter of animals so diseased, or which have been exposed to such diseases. Before animals are slaughtered they are appraised by three stock raisers, and a certificate of the valuation given to the owner, who is entitled to receive the full value of the appraisement. The indemnity is limited to animals destroyed because of the existence of some epizootic disease, and must not be paid in the following cases: Animals belonging to the United States; animals brought into the State contrary to law, or found to be diseased or having been exposed to disease before coming into the State; animals affected with any other incurable disease than the one for which slaughtered; animals which the owner knew to be diseased when he purchased them; or for animals which have come into the State within ninety days before slaughter. The board of county commissioners of each county must provide for a "stock-indemnity fund" by the levying annually a tax not to exceed one-half mill, the same to be paid out by the State Treasurer in accordance with the provisions of the law.

When the Governor has reason to believe that a contagious or infectious disease exists in another State or Territory he must issue a proclamation designating the locality and prohibiting the importation therefrom of animals of the kind diseased, except under such restrictions as may be made by him by the advice of the State Veterinary Surgeon.

LAW.

SEC. 3000. The Governor is authorized to nominate and, by and with the advice and consent of the Senate, appoint a competent Veterinary Surgeon, who is known as the "State Veterinary Surgeon," who holds his office for two years, and must execute a bond in the sum of $5,000, and who, before entering on his duties, must take and subscribe the oath of office prescribed by the constitution.

SEC. 3001. The duties of the State Veterinary Surgeon are:

1. To investigate all cases of contagious and infectious diseases among cattle, horses, mules, and asses in this State, of which he may have a knowledge, or which may be brought to his notice by any resident in the locality where such disease exists: and, in the absence of specific information, to make visits of inspection to any locality where he may have reason to suspect that there is any contagious or infectious diseases.

2. To inspect, under the regulations of this article, all such animals, which may be brought into this State, in any manner whatever, from or through such State, Territory, or foreign country, as the Governor may declare by proclamation, upon the recommendation of the board of stock commissioners, or otherwise, must be held in quarantine for the purpose of inspection for contagious or infectious diseases.

SEC. 3002. After the making of such proclamation the owner, or person in charge, of any such animals, arriving in this State, from or through any State, Territory, or foreign country, against which quarantine has been declared, must notify the State Veterinary Surgeon without delay, and must not allow such animals to leave the place of arrival until they have been examined by the Veterinary Surgeon and his certificate obtained that all such animals are free from disease; and no animal pronounced unsound from disease by the Veterinary Surgeon must be turned loose, allowed to run at large or removed or permitted to escape, but must be held subject to the order of the Veterinary Surgeon. Any person failing to comply with the provisions of this section is punishable as provided in Section 1174, of the Penal Code, and is liable for any damage and loss that may be sustained by any person by reason of the failure of such owner to comply with the provisions of this section.

SEC. 3003. The owner of such animals, ridden under the saddle or driven in harness into this State, or under yoke, and any person coming into this State with his own team or teams, is not required to notify the Veterinary Surgeon, or await the inspection of the animals, but he is liable for all loss or damage to any person by reason of any contagious or infectious disease brought into the State by his animals; and no such animals must be held in quarantine for a longer period than ninety days, unless contagious or infectious disease is found to exist among them.

SEC. 3004. In all cases of contagious or infectious disease among domestic animals or Texas cattle in this State, the Veterinary Surgeon has authority to order the quarantine of the infected premises, and in case such a disease becomes epidemic in any locality in this State, the Veterinary Surgeon must immediately notify the Governor, who must thereupon issue his proclamation forbidding any animal of the kind among which such epidemic exists to be transferred from said locality without a certificate from the Veterinary Surgeon showing such animal to be healthy. The expense of holding, feeding, and taking care of all animals quarantined under the provisions of this article must be paid by the owner, agent, or person in charge of such animals.

SEC. 3005. In case of any epidemic disease where premises have been previously quarantined by the Veterinary Surgeon, as before provided, he is further authorized and empowered, when in his judgment necessary, to order the slaughter of any and all such diseased animals upon said premises, and all such animals as have been exposed to contagion or infection, under the following restrictions: The order must be a written one, and must be made in duplicate, and there must be a separate order and duplicate for each owner of the animals condemned, the original of each order to be filed by the Veterinary Surgeon with the Secretary of State and the duplicate given to the owner. Before slaughtering any animal that has been exposed only, and does not show disease, the Veterinary Surgeon must call in consultation with him two practicing veterinary surgeons or physicians, residents of the State, or, if this is impossible, then two stock owners, residents of the State, and he must have written indorsements upon his order of at least one of the consulting persons, stating that such action is necessary, before the animal is slaughtered.

SEC. 3006. Whenever, as in this article provided, the Veterinary Surgeon orders the slaughter of one or more animals, he must at the time of making such order notify in writing the nearest available justice of the peace, who must thereupon summon three disinterested citizens, who are stock owners in the neighborhood, to act as appraisers of the value of the animal. The appraisers, before entering upon the discharge of their duties, must be sworn to make a true and faithful appraisement without prejudice or favor. They must, after making their appraisement, return certified copies of their valuation, a separate one being made for each owner, together with an accurate description of each animal slaughtered (giving all brands, earmarks, wattles, age, sex, and class, as to whether American, half-breed, or Texas) to the justice of the peace by whom they were summoned, who must, after entering the same upon his record and making an indorsement upon each showing it to have been properly recorded, return it, together with a duplicate order of the Veterinary Surgeon, to the person owning the animal slaughtered; and it is the duty of the Veterinary Surgeon to superintend the slaughter of such animals as may be condemned, and also the destruction of the carcass, which latter must be by burning to ashes or burying in the earth to the depth of not less than 6 feet, and which must include every part of the animal and hide, and also excrement as far as possible. If the owner of any animal found diseased by the Veterinary Surgeon is killed, or consents to its being killed by the Veterinary Surgeon without appraisement, then the Veterinary Surgeon must burn or bury it as herein provided.

SEC. 3007. Thé Veterinary Surgeon must make an annual report on or before the first day of October to the State Board of Stock Commissioners of all matters connected with his work, and the board must make the same a part of their annual report to the Governor, and they must also transmit to the several boards of county commissioners such parts of the report as they consider necessary and of general interest to the breeders of live stock. The board must also give information in writing, as soon as it is obtained, to the Governor and to the various boards of county commissioners, of each case, or supposed case, of disease in each locality, the cause, if known, and the measures adopted to check it.

SEC. 3008. Whenever the Governor has good reason to believe that any disease mentioned in this article has become epidemic in certain localities in another State or Territory, or that conditions exist that render domestic animals and Texas cattle likely to convey disease, he must, by proclamation, designate such localities, and prohibit the importation therefrom of any live stock of the kind diseased into this State, except under such restrictions as he, after consultation with the Veterinary Surgeon, may deem proper. Any person who, after the publication of such proclamation, knowingly receives in charge any animal from any of the prohibited districts, and transports or conveys the same within the limits of this State, is punishable as provided in Section 1175 of the Penal Code, and is further liable for any and all damages and loss that may be sustained by any person by reason of the importation or transportation of such prohibited animals.

SEC. 3009. It is the duty of any person who has upon his premises, or upon the public domain, any case of contagious or infectious disease among such animals, to immediately report the same to the Veterinary Surgeon; and a failure to do so, or any attempt to conceal the existence of such disease, or to wilfully or maliciously obstruct or resist the Veterinary Surgeon in the discharge of his duties, is punishable as prescribed in Section 1176, of the Penal Code, and forfeits all claims to indemnity for loss from the State.

SEC. 3010. The following regulations must be observed in all cases of disease mentioned in this article:

1. It is unlawful to sell, give away, or in any manner part with, any animal affected with, or suspected of being affected with, contagious or infectious disease; and in case of any animal that may be known to have been affected with or exposed to any such disease, within one year prior to such disposal, due notice of the fact must be given in writing to the party receiving the animal.

2. It is unlawful to kill for the purpose of selling the meat, any such animal, or to sell, give away, or use any part of it or its milk, or to remove any part of the skin. A failure to observe these provisions is punishable as provided in Section 1176 of the Penal Code. It is the duty of the owner or the person having in charge any such animal affected with, or suspected of being affected, any contagious or infectious disease, to immediately confine the same in a safe place, isolated from other animals, and with all necessary restrictions to prevent dissemination of the disease, until the arrival of the Veterinary Surgeon. These regulations apply as well to animals in transit through the State as to those resident therein; and the Veterinary Surgeon, or his duly authorized agent, has authority to examine, in car, yard, pastures, or stables, or upon the public domain, all such animals, and on detection of disease, to take possession of, and treat and dispose of the animals in the same manner as provided by this article.

SEC. 3011. All claims arising from the slaughter of animals under the provisions of this article, together with the order of the Veterinary Surgeon and the valuation of the appraisers in each case, must be submitted to the State Auditor, and for each claim that he finds to be equitable and entitled to indemnity under this article must issue to the person entitled thereto his warrant on the stock indemnity fund in the State Treasury for the sum named in the appraiser's report. In auditing any claim under this article the auditor must satisfy himself that it does not come under any class for which indemnity is prohibited by this article, and he must require the affidavit of the claimant to this fact, or if the claimant be not cognizant thereof, then of some reputable person who is cognizant thereof; and also the certificate of the Veterinary Surgeon, whose duty it is to inform himself fully of the fact, that in his opinion the claim is legal and just, and the auditor may, in his discretion, require further proof.

SEC. 3012. The indemnity granted is the value of the animal as determined by the appraiser with reference to its dimished value because of being diseased or having been exposed to disease. The indemnity must be paid to the owner upon his application and the presentation of the proofs prescribed therein, and such application must be made within six months after the slaughtering of the animal or the claim is barred. The right to indemnity under this article is limited to animals destroyed by reason of the existence of some epizootic disease generally fatal and incurable, such as rinderpest, hoof-and-mouth disease, pleuropneumonia, anthrax, or Texas fever, among bovines, and glanders among horses, mules, and asses. For the ordinary contagious diseases, not in their nature fatal, such as epizootic and influenza in horses, no indemnity must be paid. The right to indemnity does not exist, and the payment of such must not be made, in the following cases:

1. For animals belonging to the United States.

2. For animals that are brought into the State contrary to the provisions of this article.

3. For animals that are found to be diseased, or that are destroyed because they have been exposed to disease before or at the time of their arrival in the State.

4. When an animal was previously affected by any other disease, which, from its nature and development, was incurable and necessarily fatal.

5. When an owner or person in charge has knowingly or negligently omitted to comply with the provisions of Sections 3009 and 3010 of this article.

6. When an owner or claimant, at the time of coming into possession of the animal knew it to be diseased, or received the notice specified in the first clause of Section 3010 of this article.

7. When the animal has been brought into the State within ninety days immediately preceding the outbreak of disease, on account of which such animal was killed.

SEC. 3013. The Veterinary Surgeon receives for his services an annual salary of $2,500. No person must receive the appointment of State Veterinary Surgeon who is not a graduate in good standing of a recognized college of veterinary surgeons, either in the United States, Canada, or Europe.

SEC. 3014. The appraisers mentioned in this article receive $3 for each day or part of a day they are actually employed, which must be paid from the State Treasury out of the stock indemnity fund in this article provided, upon vouchers which bear the certificate of the justice who summoned them. The justice receives his ordinary fee for issuing a summons, to be paid out of the stock indemnity fund. The persons called in consultation by the Veterinary Surgeon each receives $3 for each day or part of a day they are actually employed, and 10 cents per mile for distances actually traveled, which sums must be paid from the State Treasury out of the stock indemnity fund upon vouchers certified to by the Veterinary Surgeon. The incidental expenses in causing animals to be slaughtered and their carcasses to be burned, and disinfecting infected premises, must be paid from the State Treasury out of the stock indemnity fund, upon vouchers.

SEC. 3015. The liability for indemnity for animals destroyed and for fees, costs, and expenses incurred under the provisions of this article in any year is limited by, and must in no case exceed, the amount especially designated for the purpose and for that period, by the terms of that article; nor must the Veterinary Surgeon or anyone else incur any liability under the provisions of this article in excess of the surplus in the stock indemnity fund hereinafter provided; nor must any act be performed or property taken under the provisions of this article become a charge against the State.

SEC. 3016. The board of county commissioners of each county must, at the time of making the annual assessment, levy a special tax not exceeding one-half of one mill on the dollar upon the assessed value of all cattle, horses, mules, and asses in the county, to be known as the "Stock Indemnity fund;" said tax must be collected and paid to the State Treasurer in the manner provided by law for the levying, collection, and payment of other State taxes, which fund constitutes the indemnity fund specified by this article to be used in paying for animals destroyed and for fees, costs, and expenses provided under the provisions therefor. It must be used exclusively for that purpose, and must be paid out by the State Treasurer as provided in this article.

SEC. 3017. The Veterinary Surgeon must select the place where stock must be quarantined.

SEC. 3018. The Veterinary Surgeon has power to appoint, from time to time, deputies, not exceeding four in number, at any time he can not personally attend to all the duties required by his office, at a salary not to exceed $5 per day for each day actually employed, to be paid out of the stock-indemnity fund, and must designate the county for which each deputy is to act.

QUARANTINE PROCLAMATION.

STATE OF MONTANA, EXECUTIVE OFFICE,
Helena, March 13, 1897.

Whereas under the provisions of an act of the Legislative Assembly of the State of Montana entitled, "An act to provide for the appointment of State Veterinary Surgeon, and to suppress and prevent infectious diseases among domestic animals," it is made my duty, whenever I shall have good reason to believe that any disease covered by this act has become epizootic in certain localities in any other State or Territory or foreign countries, or that conditions exist that render domestic animals liable to convey disease, that I shall thereupon, by proclamation, schedule such localities and prohibit the importation from them of any bulls, cows, or calves for breeding purposes into this State, except under such restrictions as I, after consultation with the Veterinary Surgeon, may deem proper; and

Whereas I have reason to believe that conditions exist that render cattle in any and all of the other States, Territories, and foreign countries, if brought into this State, liable to bring with them the disease known as tuberculosis, or consumption:

Now, therefore, I, Robert B. Smith, Governor of the State of Montana, in obedience to the duty imposed upon me by said statute and the terms thereof, do hereby schedule the localities hereinbefore named, and I do hereby forbid the importation into the State of Montana of any bulls, cows, or calves whatsoever for breeding purposes which have been brought from any portion of said scheduled localities, except upon the following conditions:

All bulls, cows, or calves intended for breeding purposes shall have a certificate of health, stating that tuberculin has been used in said examination, accompanied by a copy of the record kept during the tuberculin test, and that said examination has been made by an official veterinarian of some State, Territory, or foreign country, and that said bull, cow, or calf is free from tuberculosis, or consumption.

Should such examination be impossible for any reason before such animals come into this State, then shall such animal or animals remain in quarantine until the State Veterinarian or his deputy can make such examination, at the owner's expense, and give such certificate for each animal, using the tuberculin test in each examination and on each bull, cow, or calf so imported for such breeding purposes.

All cattle imported from the aforesaid scheduled localities shall be subject to quarantine for ninety days, or for such shorter time as may be deemed necessary in the opinion of the State Veterinary Surgeon or his duly authorized deputy, to determine whether such cattle have been exposed to the infection of tuberculosis, or consumption, prior to importation.

And I do hereby warn all corporations, persons, or companies to give due and full notice to the State Veterinary Surgeon of Montana, preceding the arrival at the boundary line of the said State of Montana, of all such cattle as come within the provisions of this proclamation.

Provided, however, That nothing in this proclamation shall be so construed as to prohibit the transportation of any cattle through or into this State, providing a certificate of health from any State, Territorial, or Government Veterinarian shall accompany them, stating that the State or locality from which such cattle came is free from tuberculosis.

In witness whereof I have hereunto set my hand and caused the great seal of the State of Montana to be affixed at the City of Helena, the capital of said State, this 13th day of March, A. D. 1897.

By the Governor:

ROBERT B. SMITH.

Attest:

T. S. HOGAN, *Secretary of State.*

NEBRASKA.

There is no special law relative to bovine tuberculosis in Nebraska, but sections given below, from the Compiled Laws (1897), are applicable to that disease.

It is unlawful to drive cattle affected with any contagious or infectious disease through the State or to import into the State animals so affected. Animals so diseased shall not run at large, nor shall anyone sell such animals, knowing them to be diseased, without disclosing their condition to the purchaser.

LAWS.

453. SEC. 10. That every person shall so restrain his diseased or distempered cattle, or such as are under his care, that they may not go at large; and no person or persons shall drive any diseased or distempered cattle affected with any contagious or infectious disease into or through this State or from one point thereof to another. Any person or persons offending against this section shall, on conviction thereof before any justice of the peace, forfeit not less than $5 nor more than $25 for every head of such cattle, and be liable for all costs and damages.

454. SEC. 11. Any justice of the peace, upon proof before him that any cattle are going at large or are driven in or through his county in violation of the preceding section, shall order a constable or sheriff to impound them, and the owner thereof shall be held liable for all costs and damages.

479. SEC. 36. It shall not be lawful for the owner of any domestic animal or animals, or any person having them in charge, knowingly to import or drive into this State any animal or animals having any contagious or infectious disease; and any person so offending shall be deemed guilty of a misdemeanor, and shall be punished by fine in any sum not less than $1 nor more than $100, and be imprisoned in the county jail not more than three months, or both, in the discretion of the court.

480. SEC. 37. Any person being the owner of any domestic animal or animals, or having the same in charge, who shall turn out, or suffer any such domestic animal or animals having any contagious or infectious disease, knowing the same to be so diseased, to run at large upon any uninclosed land, common, or highway, or shall let the same approach within twenty rods of any highway, or shall sell or dispose of any domestic animal or animals, knowing the same to be so diseased, without fully disclosing the fact to the purchaser, shall be deemed guilty of a misdemeanor and shall be punished by a fine in any sum not exceeding $500 and imprisoned in the county jail not less than six months.

481. SEC. 38. Nothing in this act shall be so construed as to prevent the recovery of damages in a civil action against any person or persons who shall sell, trade, or import, or drive into this State such diseased animal or animals, or who shall allow such domestic animal or animals to run at large, or to approach nearer than twenty rods of any highway.

482. SEC. 39. Any person violating any of the provisions of this act, in addition to the penalties herein provided, shall be liable for all damages that may accrue to the party damaged by reason of said diseased animal or animals imparting disease.

AN ACT to amend Section 76 of the Criminal Code of the State of Nebraska, and to repeal said Section 76 as it now exists. (Approved March 30, 1899.)

Be it enacted by the Legislature of the State of Nebraska:

SECTION 1. That Section 76 of the Criminal Code of the State of Nebraska be amended so as to read as follows:

"SEC. 76. It shall be unlawful for any person to sell, barter, or dispose of, or permit to run at large any horses, cattle, sheep, or domestic animal, knowing that such horse, cattle, sheep, or domestic animals are infected with contagious or infectious disease, or have been recently exposed thereto, unless he shall first duly inform the person to whom he may sell, barter, or dispose of such horse, cattle, sheep, or other domestic animal, of the same; and any person so offending shall be fined in any sum not less than $20 nor more than $100, or be confined in the jail of the county not exceeding three months."

SEC. 2. That Section 76 of the Criminal Code of the State of Nebraska as heretofore existing, be and the same hereby is repealed.

NEVADA.

The law concerning tuberculosis in Nevada is included in the general law against contagious diseases; tuberculosis, however, is specifically mentioned.

The law provides for a State Live Stock Inspector to be appointed by the Governor and under the control of the State Board of Health. If upon examination the inspector finds animals infected with a contagious or infectious disease and deems it proper that they should be quarantined, he shall notify the district court of the character of the disease and the number of animals infected. Said court shall appoint five freeholders to make examination and, if a majority of them agree with the inspector, they shall certify the same to the said court, who shall command the sheriff to compel the owner to quarantine such stock and to close all creameries and dairies in the district so affected until the disease abates, and no stock shall be removed from the infected district without the inspector's certificate of health accompanying them.

No stock which have not been inspected and which are not accompanied by a certificate of health from the inspector shall be allowed to enter the State.

The inspector is required to make in detail monthly reports of his work.

An act approved March 10, 1891, provides that no cattle shall be brought into the State which have had any contagious or infectious disease within ninety days immediately prior to their importation.

LAWS.

AN ACT providing for the appointment of a State Live Stock Inspector, defining his duties, and fixing his compensation. (Became a law March 22, 1890.)

SEC. 5. It shall be the duty of the justice of the peace, district attorney, or board of county commissioners to notify said State Live Stock Inspector at once at his office by letter or telegram. It shall be his duty to go to the locality named and give such aid and instructions as he may think best for the prevention or cure of the diseases with which he shall find such live stock infected with.

SEC. 6. If upon investigation said State Live Stock Inspector shall be satisfied that said live stock is infected with what is known as pleuropneumonia, tuberculosis, anthrax, glanders, or any other contagious and infectious disease against which he may think best to quarantine, he shall immediately notify the district court of the judicial district or one of the judges thereof in vacation in said county in which said diseased stock may be found, setting forth in writing the number of stock infected, the character and type of the disease. Said court or judge thereof in vacation shall thereupon issue an order in writing commanding the sheriff to immediately summon five freeholders, being stock raisers, who shall proceed at once to the locality where such diseased stock may be and carefully examine the same with the inspector. If a majority of said freeholders shall find such stock infected as aforesaid, they shall certify such finding in writing to the court or judge aforesaid, who shall thereupon issue an order in writing commanding the sheriff to compel the owners or other persons in whose possession such diseased stock shall be found to immediately quarantine such diseased stock and to close all creameries or dairies in the affected district until such time as the disease abates, and that no stock shall be moved from the infected district until they have been examined and the inspector's certificate of health accompanying them, and that all stock dying from contagious or infectious diseases that their carcasses shall be burned immediately and not buried or left to decay.

SEC. 7. No stock from affected districts in other States or Territories will be allowed to cross the lines and enter Nevada until they have first been inspected at the owner's expense. The inspector's fee shall be $10 per day and necessary traveling expenses. This shall be applied to the general fund of the State of Nevada. The inspector may be notified by letter or telegram; he shall go at once to the place on the border line mentioned and inspect said stock; if found healthy, give a certificate of health to those in charge of said stock on the payment of inspector's fees and necessary traveling expenses.

SEC. 8. Any person or persons, company, or corporation who shall violate any provision of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not to exceed $500 nor less than $50, or by imprisonment in the county jail not more than six months nor less than fifty days for each offense.

SEC. 9. The sheriff shall receive for his services under this act such compensation as is now provided by law for similar labor, and the freeholders making such examinations as aforesaid shall receive such compensation as is now provided by law for juror's services, which shall be allowed by the district court of the district and paid out of the county treasury of the county in which such diseased stock shall be found, as other claims are paid.

SEC. 10. Said inspector shall report to the board of health in writing at least once in every month, setting forth the locality or localities visited as provided in the preceding section, the kind of stock inspected, the time taken to inspect them, the number admitted to cross the line into Nevada, the number permitted to leave infected districts, and to whom certificates of health for stock were given and the amount of fee received for inspecting and issuing certificates; also the kind of stock treated, the type and character of the disease, the remedies prescribed, and the results as far as known. He shall also render an account for the number of miles traveled and the actual sum of money paid out by him therefor; and if found correct, shall be audited and allowed by the board as is now provided by law.

SEC. 11. The secretary of the aforesaid board shall from time to time select from said report and publish such information as he may think valuable to the people of Nevada. This information may be published in connection with the report relating to agriculture or in a separate bulletin.

SEC. 12. The State Live Stock Inspector herein provided for shall receive a salary not to exceed $1,200 per annum and necessary traveling expenses, payable out of the general fund of the State of Nevada as other claims are paid.

SEC. 13. The State Controller is hereby authorized, empowered, and required to draw his warrant in favor of the State Live Stock Inspector created by this act for the salary and traveling expenses provided for in this act when approved by the board of examiners, and the State Treasurer is hereby authorized, empowered, and directed to pay the same.

SEC. 14. It shall be the duty of the secretary of said board of health to collect the information derived from the report made by said inspector as provided for in this act and make a report to the State Legislature within ten days of the date of the meeting thereof, such data and useful knowledge, together with suggestions, as may be beneficial to the stock interests of the State of Nevada.

NEW HAMPSHIRE.

The State Board of Cattle Commissioners of New Hampshire deals with tuberculosis under a general law against contagious and infectious diseases of domestic animals.

This law authorizes the Governor to cooperate with the United States Bureau of Animal Industry in measures for the suppression and extirpation of such diseases.

The work against these diseases is in the hands of a State Board of Cattle Commissioners, whose duty it is to make investigations in regard to contagious and infectious diseases among domestic animals and to make such regulations as they may deem necessary to exclude or arrest the same.

Selectmen are required to quarantine animals so diseased so long as it may be necessary in order to prevent the spread of disease, and in so doing are to be governed by the rules and regulations of the State Board of Cattle Commissioners. The selectmen or the board may order the killing of any animal if, in the opinion of a veterinarian selected by them, it is affected with a contagious or infectious disease. Animals so killed shall be appraised, and the owner may receive from the town their full value in their diseased condition, if the animals have been owned within the State for a period of three months before the detection of the disease. If an owner is not satisfied with the appraisal, he may appeal to the Supreme Court within thirty days.

All costs in connection with this work are paid by the towns, but four-fifths of the amount are reimbursed by the State.

An amendment to the law in 1893 makes an exception to the general law as abstracted above. It provides that the owner of cattle killed by order of the State Board of Cattle Commissioners shall recover from the State one-half the value of such animals upon a basis of health.

The work with reference to tuberculosis under these laws is fully set forth in the report of the Board of Cattle Commissioners in the Report of the Board of Agriculture for the biennial period ended October 1, 1898, which is copied herewith:

REPORT OF THE STATE BOARD OF CATTLE COMMISSIONERS.

[Chapter 113, Public Statutes.]

Section 1. The Governor is authorized to accept on behalf of the State the rules and regulations prepared by the Commissioner of Agriculture under and in pursuance of Section 3 of an act of Congress approved May 29, 1884, entitled "An act for the establishment of a bureau of animal industry, to prevent the exportation of diseased cattle, and to provide means for the suppression and extirpation of pleuropneumonia and other contagious diseases among domestic animals," and to cooperate with the authorities of the United States in the enforcement of the provisions of such act.

SEC. 2. The inspectors of the Bureau of Animal Industry of the United States shall have the right of inspection, quarantine, and condemnation of animals affected with any contagious, infectious, or communicable disease, or suspected of being so affected, or that have been exposed to any such disease; and for these purposes are authorized and empowered to enter upon any ground or premises. They shall have power to call on sheriffs, constables, and peace officers to assist them in the discharge of their duties in carrying out the provisions of said act of Congress; and it is made the duty of said officers to assist them when so requested. The inspectors shall have the same powers and protection as peace officers while engaged in the discharge of their duties.

SEC. 3. All damages and expenses incurred under the preceding sections shall be paid by the United States, and in no case shall this State be liable for any part thereof.

SEC. 4. The Secretary of the State Board of Agriculture, the Master of the New Hampshire State Grange of Patrons of Husbandry, and the Secretary of the State Board of Health, for the time being, shall constitute a board to be known as the State Board of Cattle Commissioners. If a vacancy in the board shall occur, the Governor, with the advice of the council, shall fill it by appointment, and the appointee shall hold office until the vacancy in the office occasioning the vacancy in the board is filled.

SEC. 5. The board shall make investigations in regard to the existence of contagious and infectious diseases among domestic animals in the State, and may make regulations prohibiting the introduction into the State of animals so diseased, and controlling or prohibiting their transportation, and such other regulations as the board deems necessary to exclude or arrest any such disease, and may modify or amend its regulations as the circumstances shall require.

SEC. 6. The board may employ skilled veterinarians and agents and servants to aid in the performance of the duties assigned to the board.

SEC. 7. Any person or corporation who shall violate any of the regulations of the board shall be fined not exceeding $100.

SEC. 8. The compensation and expenses of the board shall be audited and fixed by the Governor and council, and shall be paid from the State Treasury; but all expenses incurred under the provisions of this chapter shall not exceed $10,000 in any one year.

SEC. 9. Selectmen shall cause all horses infected with glanders or other contagious disease, and all other domestic animals infected with contagious diseases, or which have been exposed to such diseases, to be collected in some suitable place or places and kept isolated from other animals so long as may be necessary to prevent the spread of the diseases.

SEC. 10. In the performance of the duties prescribed by the preceding section, the selectmen shall be governed by the regulations and directions that may be made or given on the subject by the State Board of Cattle Commissioners.

SEC. 11. The State Board of Cattle Commissioners, or, if they have not taken cognizance of the case, the selectmen of the town in which the animal is, may order any domestic animal to be killed and buried which, in the opinion of a veterinary surgeon selected by them, has a contagious or infectious disease.

SEC. 12. The owners of animals so killed shall be entitled to recover of the town the value of such animals in their diseased condition if they had been owned in the State three months at least before the disease was detected. The State Board of Cattle Commissioners, or the selectmen, as the case may be, shall cause the value to be ascertained by the appraisal of three competent and disinterested persons selected by them, who shall be sworn to the faithful discharge of their duties.

SEC. 13. In case the owner is aggrieved by the appraisal, he may appeal by petition to the Supreme Court within thirty days after he is notified of the appraisal. He shall notify the town of his appeal, and enter and prosecute it as he would if it were a civil action at law wherein the same amount of damages was claimed, and judgment shall be rendered therein in like manner.

SEC. 14. If upon such appeal he recovers a larger sum than the appraisers awarded him, he shall recover his taxable costs: otherwise he shall pay costs.

SEC. 15. All damages and expenses incurred under the six preceding sections, except expenses incurred by the State Board of Cattle Commissioners, shall be paid by the town in the first instance; but four-fifths thereof shall be reimbursed to it from the State Treasury. The Governor and council shall audit all claims thus presented, and the Governor shall draw his warrants upon the Treasurer for the amounts allowed in favor of the towns entitled thereto.

SEC. 16. In cases where United States inspectors, State commissioners, and selectmen, or any two of such boards, take action with reference to the same subject-matter under the provisions of this chapter, they shall have precedence in authority in the order above named.

SEC. 17. Any person or corporation who shall bring into the State, between the twentieth day of May and the twentieth day of October, any Texas or Cherokee cattle that have not been kept north of the Ohio or Missouri river during the winter immediately preceding, shall be fined not exceeding $25 for each animal so brought into the State. The term Texas or Cherokee cattle shall be construed to mean the native cattle of Texas and Louisiana and the classes of cattle known under those names.

SEC. 18. Any person who shall expose, or suffer to be exposed, in any highway, public place, or pasture, any horse affected by the disease known as glanders, shall be fined not exceeding $50 for each offense, for the benefit of the town or city where the offense is committed.

SEC. 19. Any person exposing any domestic animal as aforesaid affected with any other contagious or troublesome disease shall be fined not exceeding $25 for each offense, for the benefit of the town.

SEC. 20. It shall be the duty of selectmen and police officers of towns in which any of the offenses mentioned in the three preceding sections shall be committed to cause the offenders to be prosecuted.

At the session of the Legislature of 1893 the following amendment was passed:

SECTION 1. The owners of cattle killed by order of the State Board of Cattle Commissioners shall recover of the State one-half the value of such animals upon a basis of health, said value to be ascertained by a disinterested appraisal, provided they have been owned in the State three months at least before the disease was detected.

SEC. 2. All acts and parts of acts inconsistent with this act are hereby repealed, and this act shall take effect upon its passage.

QUARANTINE REGULATIONS.

The following order is still in force:

STATE OF NEW HAMPSHIRE,
BOARD OF CATTLE COMMISSIONERS,
Concord, July 14, 1896.

General Order No. 3.

1. General Order dated January 11, 1892, and General Order dated January 19, 1892, are hereby repealed.

2. All persons and companies are hereby prohibited from bringing or driving neat cattle into the State of New Hampshire without a permit from this board.

3. All neat cattle brought or driven into the State of New Hampshire under a permit from this board are hereby placed in quarantine upon arrival in the State until identified and released.

4. Selectmen of towns and cities of New Hampshire are hereby authorized to seize and hold in quarantine any neat cattle coming into the State without a legal permit, and notify this board at once of such action.

5. Permits to bring or drive neat cattle into New Hampshire will be issued only upon the result of the tuberculin test, to be applied and reported under such regulations and forms as will be furnished upon application to this board.

6. This order is issued under authority of Chapter 113 of the Public Statutes of New Hampshire, and all violations will be vigorously prosecuted.

7. This order shall take effect on the fifteenth day of July, 1896.

IRVING A. WATSON, *President*,
N. J. BACHELDER, *Secretary*,
Board of Cattle Commissioners.

The following explanatory circular was issued in connection with the above order:

STATE OF NEW HAMPSHIRE,
BOARD OF CATTLE COMMISSIONERS,
Concord, July 14, 1896.

To whom it may concern:

The quarantine regulations issued by the Board of Cattle Commissioners of the State of New Hampshire against all cattle outside of the State are made necessary by the action already taken in the same line by the authorities of other New England States. Evidence has been submitted to this board that animals failing to pass the test, and therefore debarred from those States, are being brought into New Hampshire, and are contributing to our milk supply, to the injury of the healthfulness and reputation of New Hampshire dairy products.

Persons desiring to bring cattle into New Hampshire will be furnished, upon application, with the necessary blanks upon which to forward the result of the test, said test to be made by any person who is satisfactory to the cattle commissioners of the State in which the test is made. Upon arrival in this State the cattle will be identified and released as soon as practicable by this board or its representative.

In making the report of tuberculin test, when applying for a permit, both the original and duplicate reports are to be made out and forwarded to this office without being detached from the blank permit.

BOARD OF CATTLE COMMISSIONERS,
Concord, N. H.

MODIFICATION OF QUARANTINE ORDER.

STATE OF NEW HAMPSHIRE,
BOARD OF CATTLE COMMISSIONERS,
Concord, April 1, 1897.

General Order No. 4.

General Order No. 3, dated July 14, 1896, is hereby modified as follows:

On and after this date, unless otherwise ordered, neat stock will be admitted to the State of New Hampshire for pasturage or for domestic use under the following conditions:

1. Applications for permit to bring cattle into New Hampshire for pasturage or for domestic use must be made upon blanks furnished by this board.

2. The owner or drover of said cattle must state upon said application that they are brought into the State for pasturage or for domestic use.

3. The owner or drover of said cattle must furnish upon said application the certificate of a veterinarian who is a regular graduate of a veterinary institution or who is recommended by the cattle commissioners of the State from which the cattle are sent, stating that the cattle have been subjected to a physical examination and no symptoms of tuberculosis or other contagious disease are found.

4. Applications from Massachusetts must also state that the cattle have been tagged by the Massachusetts Cattle Commission, which will entitle them to return to that State without reexamination, and must be indorsed in this respect by the Massachusetts Cattle Commission or agent of said commission.

5. This order will take effect April 1, 1897, and remain in force until revoked by this board.

N. J. BACHELDER,
Secretary New Hampshire Board of Cattle Commissioners.

The following explanatory circular was issued in connection with the modification order:

STATE OF NEW HAMPSHIRE,
BOARD OF CATTLE COMMISSIONERS,
Concord, April 1, 1897.

To owners and drovers of stock:

The inclosed order modifies the previously existing regulation in regard to bringing neat stock into New Hampshire for pasturage, inasmuch as it allows a physical examination instead of requiring the tuberculin test. The application for permit must be made to the board upon the application furnished by this board, and no neat cattle can be legally admitted for pasturage until said application has been properly filled out and filed with this board and the permit issued in due and regular form. In short, this order simply allows the report of the physical examination to be filed with this board instead of the report of the tuberculin test, and a permit to bring cattle into New Hampshire for pasturage or other purposes is just as necessary as before the issuing of this order.

Selectmen and other officials have full authority to proceed against violators of this and the previous order as modified, the same as before, and all parties will govern themselves accordingly.

N. J. BACHELDER,
Secretary New Hampshire Board of Cattle Commissioners.

While the law enacted to govern this matter confers upon the executive officer of the State Board of Health, the State Board of Agriculture, and State grange the authority in the suppression of contagious diseases among animals, yet all action taken and money expended have been with the approval of the several organizations named and by the advice of the Governor and council. While every case coming to the attention of the board has been investigated and such action taken as the policy of the board demanded, the keeping of the work within legitimate bounds has been somewhat complicated by the appropriation made by the Legislature in 1895 of $100,000 for the prosecution of this work, vetoed by the Governor. The present commission has never held that the exigencies of the case required the expenditure of any such amount of money, and subsequent events have proven this position to be sound. The present commission has never sought or desired the management of this matter, and favored the above bill after it was so restricted as to be under the entire control of the Governor and council and provided for the appointment of a commission to control and direct the matter. We make this somewhat extended reference to the action leading up to the period for which this report is made in order that we may more intelligently report the work accomplished and state our conclusions deduced therefrom.

The members of the commission have been allowed by the Governor and council $500 annually for clerk hire, which, with the exception of printing and postage, has been the entire office expense in the administration of the law. All applications to the board for permits to admit cattle to the State have been complied with if the proper certificate of soundness was furnished, and several thousand animals have been annually admitted under this regulation. All applications to the board for inspection of herds within the State have been given attention by forwarding to the parties making application a blank form of which the following is a copy:

APPLICATION FOR CATTLE INSPECTION.

———, 1898.

BOARD OF CATTLE COMMISSIONERS OF THE STATE OF NEW HAMPSHIRE,
Concord.

GENTLEMEN: I hereby make application for an official inspection of my herd of cattle, in regard to which I make the following statement:

My entire herd consists of ——— cattle.

First noticed symptoms of disease about ———.

Symptoms noticed are ———.

These cattle are at my stable, located about ——— miles from ———, the nearest railroad station.

If the board considers an investigation advisable, and upon a physical examination finds sufficient symptoms of tuberculosis in the herd to warrant, in the opinion of the board, the application of the tuberculin test to the herd, I hereby authorize its application by the board. I understand the expense of making an inspection to be entirely borne by the board, and that, according to law, I am to receive one-half the health value of all animals condemned by the test and destroyed in the presence of myself or that of my agent. I also agree to disinfect the stable and take other precautionary measures in accordance with the instructions of the cattle commissioners.

——— ———,
(Address) ———.

This plan has been strictly adhered to except in an occasional case where arrangements had been previously made to inspect herds in the immediate vicinity of the person applying and there was not time to have the blank forwarded and returned. The inspection would then be made without the formal application, as it required no extra expense. Other exceptions have been in the case of applications from boards of health or in the suspected existence of glanders in horses, both of which have generally had prompt attention.

All applications for inspection in official form as indicated above have had careful consideration by the board, and if the conditions reported indicated the presence of any contagious disease an inspection was ordered as soon as practicable. It has not been the practice of the board to make a second inspection in a town immediately after a previous visit, but to make the inspection as soon as the circumstances seemed to warrant, using discretion in the matter. In this work the most distant sections of the State have had equal attention with the central, and no inspection has been withheld on account of any extra expense in reaching the herd.

In addition to the action taken by the commissioners in the above-named cases the selectmen have acted in specific cases located in six towns, under the direction of the commissioners. This action by the State, and by the selectmen directed by the State, has resulted in locating and destroying 234 tuberculous cattle and 18 glandered horses. A postmortem examination has been made of every animal destroyed, and in every instance the disease for which the animal was destroyed has been found, and to such extent as to satisfy the owner of its existence without microscopic examination. In such inspections as seemed to need special attention, or where conditions were likely to exist that would need the personal attention of members of the commission, they have been present, and these cases have been growing less each year. The work of the commission has been systematized so that the greatest result could be obtained with the least possible expense.

The tuberculin test has been applied to some extent during the work of the commission, and, when first announced by supposed authorities as the proper agency for determining what animals should be killed and buried, was used for a short time as the main dependence in our work. During this trial with tuberculin 296 cattle were condemned and buried from the application of the test, and all were given a postmortem examination. A thorough observation of the results in this course, and a careful study of the matter as reported from various authorities, convinced the board that the doubt existing in its mind at the start in regard to the practicability of such a course was well founded, and the practice was abandoned except in special cases where its use seemed justifiable. About this time, when the policy of destroying cattle upon the result of the tuberculin test alone was more in doubt in the minds of the members of the board than later, Mr. F. B. Shedd, of Northfield, offered a fine herd of Holstein cattle for experimental purposes that failed to pass the tuberculin test. The offer was accepted, and under date of June 25, 1898, the following report was made upon the experiment:

CONCORD, *June 25, 1898.*

The attention of the cattle commissioners was called June 12, 1897, to a herd of thoroughbred Holstein cattle owned by Mr. F. B. Shedd, of Northfield, an extensive landowner, cultivating and improving one of the finest farms in New Hampshire. The tuberculin test had been applied by a veterinarian employed by Mr. Shedd to twenty-one cattle, twelve of which failed to pass, and in which the temperature reaction was very high. Two of the twelve were advanced cases of tuberculosis and had been destroyed before the arrival of the commissioners. The ten animals remaining, to which our attention was called, consisted of nine thoroughbred Holstein cows and a thoroughbred Holstein bull, the latter weighing over 2,000 pounds, all of which were under 4 years old. We found the nine cows isolated from all other cattle, and so much excitement prevailed that the inclosure in which they were kept was a source of serious alarm to many of the neighboring people. The bull had been assigned the entire barn, and the general appearance of all the cattle was vigorous and healthy.

We stated to Mr. Shedd that it was not our practice to destroy animals simply upon the result of the tuberculin test without other evidence of disease. To this position strong exception was taken by the owner of the cattle, who expressed a very decided opinion that the cattle should be destroyed. After a lengthy discussion of the matter Mr. Shedd offered to contribute the ten reacting animals free of cost for the purpose of an experiment to determine, as far as possible, the proper course to take with cattle in a similar condition. This generous proposition was accepted by the commissioners, with the understanding that at the end of one year a report of results should be made to the public, and, if advisable at that time, the remaining animals in the experiment should be killed and examined. Some idea of the generosity of the gentleman in contributing the cattle can be obtained from the fact that these ten animals were easily worth $1,000 if sound, and, according to the law of appraisal for condemned animals, would have cost the State $500 if destroyed. The ten animals were taken to Andover June 25, and, the year having expired, we make a report in accordance with the agreement.

The nine cows were placed upon an isolated farm where they were given such sanitary treatment for the promotion of health as any dairy cattle should have. This includes good ventilation, light, exercise, and moderate feed. The animals were kept in the open air both day and night, except in stormy weather, and for six months the milk of the entire herd was thrown away or fed to pigs. When these cattle were brought to the town some objections were raised on account of endangering other herds, so intense was the fear of tuberculosis, but, there being no objection on the part of the adjoining landowners, there was little attention given to this unnecessary scare. The bull, owing to his size and strength, was kept in another section of the town, where he could be properly handled. These animals were tested with tuberculin by a disinterested veterinarian September 12, December 9, February 23, and those not previously killed May 9. Five of the ten animals passed the test successfully September 12, and five, including the bull, failed to pass. Owing to the inconvenience and expense of keeping the bull, and the supposition on the part of a few people that he was badly diseased, he was killed soon after the test in September, although there was no previous indication of disease from a careful physical examination. He was killed for the purpose of the experiment and carefully examined by a veterinarian in the presence of many people, but the examination failed to reveal any more evidence of disease than can be found in a large percentage of the cattle in the country to-day. It was so infinitesimal as to require no consideration upon any health basis, and was strong proof of the extravagance in destroying animals by the test alone.

Only three of the remaining animals failed to pass the test applied December 9, and in one of the three the disease had developed sufficiently to be detected by physical examination and was condemned. These three were isolated from the balance of the herd and their milk thrown away. They were again tested February 23, with no material change in the result, and were taken to Concord March 29 and destroyed and examined in the presence of many witnesses. The one condemned by physical examination was found to be a well-developed case of tuberculosis and should be destroyed. Although the other two, killed at the same time, had failed to pass the test, there was no physical evidence of disease, and they were destroyed for the purpose of ascertaining their condition and for the information sought in the experiment. After a very thorough postmortem examination by a veterinarian slight evidence of disease was finally found, but it was even less than that found in the bull. and was in such condition as to lead to the conclusion that it had not only been arrested, but was on the way to ultimate recovery. How much this result was due to the treatment of the animals and how much to the alleged curative qualities of tuberculin is a matter of conjecture only. There are no developments of science in regard to the nature and characteristics of bovine tuberculosis that warrant the destruction of such animals. The remaining six animals were tested with tuberculin February 23 and May 9. and all passed the test each time. The following correspondence passed between the commissioners and Mr. Shedd:

CONCORD, *June 18, 1898.*

Mr. F. B. SHEDD, *Tilton, N. H.*

DEAR SIR: When we took the ten Holstein cattle from your place nearly one year ago, the statement was made to you that it was not the policy of the board to destroy such herds as yours appeared to be simply from the fact that the ten animals had failed to pass the tuberculin test. We remarked at the time that we had a desire to study the development of the disease in such cattle for a year or more, and with your accustomed liberality and public spirit you offered to contribute the ten reacting animals free for the purpose of the experiment, cattle that were at least worth $1,000 at that time. We accepted your generous offer, and, as the year is nearly elapsed, it is due that we make a brief report to you and ask for suggestions in regard to further action.

During this period we have destroyed four of the ten animals, and you have been present at the postmortem of each. One of these showed physical symptoms of the disease soon after it came into our possession and was condemned by the board. The other three showed no physical symptoms of the disease and were selected for reasons well known to you, and which it is not necessary to state here. You will recall the fact that the postmortem of each revealed no disease sufficient to warrant destroying the animals or sufficient to cause any danger, except in the one physically condemned. The others were killed for the purpose of the experiment, and the results are carefully recorded and will be published in full. The milk of none of the cows killed had been sold since we took charge of the animals.

We now have at East Andover the remaining six animals. They have passed the tuberculin test at the last two trials made in February and May, and from any kind of an examination that we are able to make appear to be healthy cattle. Since passing the test the milk has been sold, with the approval of the State Board of Health, the city board of health, and the milk contractors, all of whom have been fully acquainted with the history and condition of the animals and furnished the result of the tuberculin test. There has been no expense to the State for these cattle for the past six months. In view of these facts there seems to be no reason why these cattle should not be put to practical use, and we ask you for suggestions in regard to what shall be done with them. Shall we return them to you? We will gladly do this, if you desire. If not, there seem but two courses open, one of which would be to kill them at once. This would seem extravagant, and warranted only for the purpose of obtaining some information in regard to the effect of repeated applications of tuberculin. The other course would be to keep the cattle for another year at least and watch developments. Whatever is done, the detailed report of the experiment to the present time can be made, and will be a valuable contribution to the information obtained in regard to this important matter. We await with deep interest any suggestions from you in regard to this matter.

Assuring you of our full appreciation of your liberality and public spirit in donating the animals for the purpose of this experiment and of willingness to return them if you desire,

Yours, truly,
N. J. BACHELDER, *Secretary.*

Mr. Shedd's reply:

TILTON, N. H., *June 21, 1898.*

N. J. BACHELDER, Esq., *Secretary, Concord, N. H.*

DEAR SIR: I have your favor of June 18, and note what you say with regard to the condition of the cattle remaining in your hands of the herd given by me to your commission for the purpose of obtaining information by experiment upon the very important question of the existence and progress of the disease, tuberculosis, with which it was charged they were infected, after having reacted under the inoculation with tuberculin while in my possession.

I remember the consistent and conservative opinion expressed by you at the time when first your attention was called to the matter and the reasonable course recommended with regard to the treatment of the herd. While from lack of experience and perhaps prejudice I was compelled to differ from the judgment expressed by you, and for the reason that I felt that I could not consistently use the product of cattle that modern science had pronounced diseased, I felt constrained to make such disposition of them as would remove them from the balance of my herd and prevent any possibility of further contamination, not only of my own but of my neighbors' cattle.

The investigations made by your board, of which I have been made aware from time to time, and the information obtained therefrom have substantially changed the radical opinion I have heretofore entertained with regard to the prevalence of the disease generally, and especially with regard to the propriety of condemning any and all cattle which might "react" under the tuberculin test. The examination by your commission of the cattle destroyed, after repeated applications of the tuberculin test, has determined to my satisfaction the fact that judgment based upon that alone is not a safe reliance and that cattle should not be destroyed without other evidence of the presence of disease. You will remember that it was upon this point mainly that we disagreed. I am now convinced of the correctness of your judgment upon the question, and while the experiments have not resulted as I expected, I feel satisfied that your investigations will prove of great value to everyone interested in cattle, and will do much toward the proper solution of a very important problem.

Your claims as to the superior value of the physical examination in determining the extent of the disease have, in my opinion, been fully sustained, and I am now quite ready to agree with you that it is the more reliable method, and that cattle in which the presence of disease can not be determined in this way should not be destroyed.

There remains, however, this question to be solved, and I shall be interested to hear an expression from you upon it: Assuming that the tuberculin test, as applied by me in the beginning, demonstrated the presence of the disease in however slight a form, is it possible that repeated inoculations have not only checked its further development, but effected a complete cure? This, I believe, it was claimed tuberculin would do when it was first offered to the medical profession. If so, such treatment would be of inestimable value.

With regard to the disposition of the six cows remaining in the hands of your commission: As you are aware, they were regarded by me as being of greater value than as mere producers of milk. They were remarkably promising, and were desirable for breeding purposes. Three of them produced each about 40 pounds of milk with their first freshening, and this without other than ordinary feeding. What they might have done with extra feed we are not advised, but it is fair to presume that they were of sufficient promise to warrant being kept for the improvement of the herd.

I judge from your letter that you do not feel it necessary for the furtherance of the experiment that they should be destroyed, which course is in harmony with the opinion expressed by you in the beginning; and I also note your generous offer to return them to me. I scarcely know what to say to this proposition. When I turned over the herd to your commission, as a matter of fact, I expected to relinquish all right to them and to whatever value they represented, expecting and intending to place such value as an offset to whatever expense the State of New Hampshire might be compelled to bear in the conduct of the experiments that were to be made with them. However, if your board shall feel that it will be as well to return them to me as to keep them longer and to continue to experiment with them, I shall be satisfied to receive them. This I will be pleased to leave with your board to decide, expressing in advance my entire satisfaction with whatever decision you may make.

In closing, I beg to express to your board and to you personally my appreciation of the many courtesies received at your hands, and my sincere thanks for the interest you have taken in the investigation of a question of so much importance to every farmer and to every citizen in the State.

Yours, respectfully,
F. B. SHEDD.

The cattle were returned to Mr. Shedd June 24, and the experiment closed.

IRVING A. WATSON, *President.*
N. J. BACHELDER, *Secretary.*

The action of the board was, however, criticised in certain quarters, undoubtedly for special and individual purposes, and we therefore determined to destroy the animals and make a careful postmortem examination, in order to determine whether or not our conclusions were correct. Accordingly, August 1 they were killed and an autopsy made in the presence of the commissioners, a competent veterinary surgeon, and several witnesses, with the following results:

A careful autopsy was made in each case. All the internal organs were searched for evidences of disease, which were found only as stated below.

No. 1 (3790). A small encysted mass, as large as a medium-sized walnut, was found near the apex of one lung. Two of the bronchial glands were somewhat enlarged and filled with caseous matter of a thick consistency. These were the only lesions found. No evidence of recent inflammatory action or pus. All the other organs were in a healthy condition.

No. 2 (52). Two of the bronchial glands were enlarged and filled with caseous matter. On a small portion of the left lung, adjacent to the fifth rib, were found granulations, probably miliary, and which also appeared in a small patch on the ribs contiguous to the granulations on the lung. No inflammatory condition existed, and no other evidence of disease was found.

No. 3. Bronchial lymphatics slightly enlarged and containing a small amount of cheesy material, apparently encysted. No other evidence of disease.

No. 4 (366). A small nodular, encysted mass, of the size of an ordinary marble, was found in the apex of one lung. No other evidence of disease.

No. 5 (363). In one of the bronchial glands was found a small mass of caseous matter, cylindrical in shape, about one-eighth of an inch in diameter and more than an inch in length, partly calcified. No other evidence of disease.

No. 6 (362). In the upper part of one lung was found a caseous deposit, encysted, the size of a small walnut, with some calcification. In the lower part of the lung was an encysted nodule, about the size of a small cherry, containing caseous matter. No other evidence of disease.

In all the above-mentioned cases a careful examination was made of those organs most likely to be tuberculous, including lungs, liver, heart, stomach, bowels, kidneys, uterus, mammary glands, mesentery, lymphatic, and pigmentary glands—in fact, everything except the brain and spinal cord, which it was not deemed necessary to explore.

All the cows were in an excellent condition, and probably would have passed through most, if not all, slaughtering houses without any disease being discovered, with, perhaps, the single exception of case No. 2, in which the granulations upon the lung, being upon the outer surface, were apparent upon the removal of that organ.

The result of this experiment had great influence in determining the future course of this board. Nearly fifteen months after these six cattle reacted to the he enforcement of proper sanitary measures for preventing the development disease is as important as destroying diseased animals. A stable once thor- y infected with tuberculous germs is a very prolific source of the disease, rears later, unless thoroughly disinfected. We have given directions to the r of every stable inspected in regard to the action required in the matter of ation, light, exercise of animals, and disinfection, and have regarded this as ost important part of the work. Many stables have been visited very recently ertain if the suggestions have been carried out, and we found that the es suggested have been invariably made, and that the sanitary conditions of stables have been greatly improved. Quite a thorough investigation of the tions existing in the sections of the State where the disease has been found ost prevalent reveals the fact that great progress has been made in its sup- on, and in some towns it seems to be almost eradicated.

* * * * * * *

estigation made by the board in various directions demonstrates the correct- f the general statement found in these printed communications,[1] that bovine culosis has been very materially reduced among the herds of the State, and nts the further statement that New Hampshire cattle are in a comparatively y condition, and that their product is as wholesome as a more radical and sive policy on the part of the commission would have secured.

desire to emphasize the statement made in previous reports of this board, lready made in this report, that the adoption of preventive measures on the f stock owners is a matter of equal importance in the permanent suppression ine tuberculosis with the destroying of diseased animals. Such matters as ation, sunlight, exercise, and judicious feeding are of the greatest impor- , and any action that will lead to a more general adoption of these preventive ires will greatly aid in securing the result contemplated. We have less doubt ver before in regard to the wisdom of the policy adopted and followed by ew Hampshire cattle commission, and believe it to be the most practical d of dealing with bovine tuberculosis. In order to demonstrate that this is supported by the organizations most interested in the matter, both from andpoint of public health and agriculture, we here submit the action taken

CERTIFICATES.

STATE OF NEW HAMPSHIRE,
BOARD OF AGRICULTURE,
Concord, December 14, 1898.

At a meeting of the Board of Agriculture held December 15, 1898, the following action was taken:

Resolved, That this board approves the action taken by the New Hampshire cattle commission, and indorses the policy pursued as one calculated to serve the health and live-stock interests in the most practical and economical manner, and has no change to suggest in the management of this important matter.

A true copy of record
Attest:

N. J. BACHELDER, *Secretary.*

NEW HAMPSHIRE STATE GRANGE,
OFFICE OF EXECUTIVE COMMITTEE,
Concord, December 9, 1898.

This is to certify that the executive committee of the New Hampshire State Grange has been kept fully informed, from time to time, in regard to the work of the State cattle commission, and hereby declares that it is in full accord with the policy pursued, believing it to be the most practical course of suppressing bovine tuberculosis and other contagious diseases of animals. We have noted the result of the experiment conducted with the Holstein herd of cattle and recognize great value to the live-stock interest of the State therefrom.

E. C. HUTCHINSON,
Secretary Executive Committee.

N. J. BACHELDER,
Secretary Board of Cattle Commissioners, Concord, N. H.

DEAR SIR: I have been very much interested in the work of the Board of Cattle Commissioners, believing that they are doing very much for the State of New Hampshire. From such information as I have had, it would seem that your work is for two specific reasons: First, the suppression of tuberculosis in cattle to further the public health interests of the State; second, the control of the disease in the financial interests of the stock raiser and farmer. The State Board of Health is especially interested in this work from the standpoint of the first proposition, and we believe that every possible effort should be made to protect the public against disease infection through tuberculous meat and milk. To accomplish this end I believe it is the opinion of most scientists that it is unnecessary to destroy every animal that reacts to the tuberculin test, and that it is unnecessary to test with tuberculin every herd of cattle in the State. It would seem that if a careful and systematic inspection of cattle could be made by competent veterinary surgeons, with the destruction of all animals in which tuberculosis could be discovered upon a careful physical examination, the work would meet all public requirements. I understand that, as far as the law will admit, the work is now being conducted along these lines, and as far as I know is meeting with general approval.

I believe that the law should be amended so as to require an inspection of all dairies and milch cows with such frequency as might be deemed necessary, and that the commission should have power to establish rules and regulations governing the sanitary condition of the stables of all dairy herds.

Very respectfully, your most obedient servant,

G. P. CONN, M. D.,
President State Board of Health.

NEW JERSEY.

The tuberculosis work of New Jersey is performed chiefly under the act of April 6, 1898, and is in the hands of seven persons, who are known as the State Tuberculosis Commission. This commission acts upon notice from the Secretary of the State Board of Health, State Dairy Commissioner, and also any owner of animals supposed to be diseased with tuberculosis. It shall enforce any regulations that it may adopt.

Indemnity for slaughtered animals is based upon appraisement, the amount paid being three-fourths of the appraised value; but the appraisement shall not exceed $40 for each animal.

The sum of $10,000 is appropriated to the commission "for defraying the expenses and for the payment of the proportion of the appraised value of slaughtered animals."

The commission shall have power to cooperate with the Bureau of Animal Industry in any general national system which may be adopted to prevent the spread of bovine tuberculosis.

The importation of dairy cows and neat cattle for breeding purposes is prohibited, except when accompanied by certificate of reliable inspector and have been subjected to the tuberculin test. Transportation companies are prohibited from bringing into the State any such animals not accompanied by the said certificate, and persons who import such animals shall notify the secretary of the commission of the date of importation and number of cattle, their destination, etc. Provision is made for the importation of cattle from States not issuing certificates of inspection.

Cattle brought into the State without a certificate shall be subjected to the tuberculin test, and those which react shall be slaughtered; but no indemnity is paid for such slaughtered animals.

The penalty for violation of the act is not less than $25 nor more than $200 for each offense, or by imprisonment of not less than one month or more than six months, or by both such fine and imprisonment; and for a second offense by an imprisonment of not less than six months and not more than one year.

The sum of $500 is appropriated for the enforcement of the act to prevent the importation of tuberculous cattle into New Jersey.

AN ACT concerning contagious and infectious diseases among animals, and to repeal certain acts relating thereto. (Approved May 4, 1886.)

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That in case any contagious or infectious disease shall appear or be suspected to exist in any locality in this State, it shall be the duty of all persons owning or having any interest in animals infected or supposed to be infected, and of any person having knowledge or suspicion thereof, at once to notify the State Board of Health, or some officer or member of said board, of the facts, and it shall be the duty of the said board, upon receiving such information, or any information in regard thereto, to investigate the same, or cause the same to be investigated, and

if any such disease is found to exist, or likely to break out, to quarantine such animal or animals and to take such precautionary measures with relation to other animals exposed to such disease as shall be deemed necessary, and to enforce such regulations in relation to such diseases as the said board may adopt.

2. *And be it enacted*, That whenever, in the judgment of the said board, its agents or appointees, it shall appear that such disease is not likely to yield to remedial treatment, or that the expense of such treatment will be greater than the value of the animal or animals infected, and when in any case such disease is likely, in the judgment of said board, its agents or appointees, to be communicated to other animals, they shall cause the animals infected to be immediately slaughtered, their remains to be buried at least 4 feet beneath the surface of the ground, and all places in which the same have been kept to be thoroughly cleansed and disinfected.

3. *And be it enacted*, That when any animal or animals shall be slaughtered, as directed in the preceding section, the value of the same may, at the request of said board or any person interested, be ascertained and appraised by three disinterested freeholders resident in this State, who shall make and sign a certificate thereof in the presence of a witness, who shall attest the same; such appraisement shall be made on the basis of the market value of the animal or animals slaughtered just prior to the time when they became so diseased, and shall be limited to the sum of $100 for registered animals, and to $40 for all others; one-half of the valuation so ascertained shall be paid by the State on the presentation of such certificate, with the approval of the said board indorsed thereon, to the owner or owners.

4. *And be it enacted*, That when any herd or portion thereof has been or is so exposed to any contagious or infectious disease, and the State Board of Health deem the disease likely to spread to that portion of the herd still unaffected, although isolated or quarantined, said herd may, with the consent of the owner or owners, and with the restrictions agreed upon between them and the executive officer of the State Board of Health, cause or allow said herd or herds to be inoculated for the prevention of such diseases as can be thus mitigated; but any loss resulting from such inoculations shall not constitute any claim against the State or the Board of Health: *Provided*, That inoculation for pleuropneumonia shall in no case be allowed without the consent and approval of the State Board of Health, and shall be made under its direction.

5. *And be it enacted*, That when any city, township, or district shall be threatened with any contagious or infectious disease among animals to such an extent as to seem to require more general precautions, the State Board of Health shall notify the local board of health, and, with the advice and consent of the local board of health, may for a time prohibit the bringing of any cattle into such city, township, or district without inspection and a written permission, and may prohibit the running at large of animals in any township, if not already prohibited by law, for such time as the township board of health shall advise, and the State Board of Health may call upon local boards of health to discover and report cases of contagious disease and aid in measures for its abatement and prevention.

6. *And be it enacted*, That when any animal or herd of animals is held in quarantine under authority given by the laws of this State to the State Board of Health, it shall not be lawful for the owner or keeper thereof to add any animals to such herd, by purchase or otherwise, without the written consent of said board,

and adjudged guilty of a misdemeanor, and upon conviction shall be punished by a fine of not more than $200 or by imprisonment not exceeding one year, or both, at the discretion of the court, and that if any person or persons shall knowingly buy or sell, or cause to be bought or sold, any animal or animals affected with the pleuropneumonia, rinderpest, or any other contagious or infectious disease, or that has been exposed to a contagious or infectious disease, or is a part of any herd or stock held in quarantine, all such person or persons shall be deemed and adjudged guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not exceeding $200 or imprisonment not exceeding one year, or both, at the discretion of the court.

8. *And be it enacted*, That when, by reason of the locality of an infected animal or herd within a city, or by reason of frozen ground or extreme heat, it is, in the judgment of the State Board of Health, or those acting under its authority, inexpedient or impossible to bury any such dead or slaughtered animals on the premises, the board may authorize the veterinarian, acting for said board, to slash the skin and cut the flesh of the same, and, either under his direct oversight or that of the city board of health or contractor for the disposal of dead carcasses, to give over the same to the use of a bone-boiling or glue or other establishment for the disposal of dead animals, but in no case shall the same or any part thereof be disposed of for food, and any such disposal of the same shall make the party or parties concerned guilty of a misdemeanor and punishable by a fine not to exceed $100 or imprisonment in the county jail for a period not exceeding six months.

9. *And be it enacted*, That if, between the first day of October and the first day of May of any year, a veterinarian, who has been regularly graduated in veterinary medicine, desires to make a postmortem examination of any animal he has attended, or at the request of the owner of any animal that has died within the city limits, he may do so, if such examination is made within twenty hours of the death or slaughter of said animal; in every such case he shall notify the city scavenger or remover of carcasses of animals of the hour of his examination, and said scavenger shall arrange to remove the carcass in not more than three hours after the beginning of said examination.

10. *And be it enacted*, That it shall be the duty of the State Board of Health to keep a full and complete record of all the proceedings under this act and report the same annually to the State Board of Agriculture, and such report shall be printed in and form a part of the annual report of said board of agriculture.

11. *And be it enacted*, That the sum of $2,000 is hereby annually appropriated to the State Board of Health to defray the expenses of the said board in the duties imposed by this act, and that the Governor, Secretary of State, and the Comptroller be, and they are hereby, authorized to determine what sum annually shall be allowed to said board or any member thereof for services in the oversight and execution of the duties hereby imposed, but the amount allowed shall not exceed the sum of $500 in any one year.

12. *And be it enacted*, That if, on account of the prevalence of any contagious disease of animals, or the necessary guarding against the same, any greater expenditure shall seem to be required, the State Board of Health shall present the facts to the Governor, the Secretary of State, and the Comptroller, who shall authorize such additional amount as they may think necessary, but in no case shall the yearly amount thus authorized to be expended exceed $5,000.

13. *And be it enacted*, That all bills for money expended under this act shall be audited by the Comptroller of this State, and then submitted to the Governor for his approval, and after being thus audited and approved by the Governor, shall be paid by the State Treasurer upon warrant of the Comptroller.

14. *And be it enacted*, That the following acts, to wit: (1) A supplement to an act entitled "An act to establish a State Board of Health," approved March 9,

1877, which act was approved on the 12th day of March, 1880; (2) A further supplement to an act entitled "A supplement to an act entitled 'An act to establish a State Board of Health,'" approved March 9, 1877, which supplement was approved March 12, 1880, which further supplement was approved on the 23d day of March, 1881; (3) A supplement to an act entitled "An act to establish a State Board of Health," approved March 9, 1877, which supplement was approved March 12, 1880, and also a supplement to the further supplement to said act, approved March 23, 1881, which supplement was approved March 17, 1882; (4) Supplement to act entitled "An act to establish a board of health," approved March 9, 1877, and to supplements thereto relating to the contagious diseases of animals, which supplement was approved on March 22, 1883, and all other acts and parts of acts inconsistent with the provisions hereof, be, and the same are, repealed; but any rights acquired under the said acts, or either of them, and any suits pending under the same shall not be affected by the repeal.

15. *And be it enacted*, That this act shall take effect immediately.

A SUPPLEMENT to an act entitled "An act concerning contagious and infectious diseases among animals and to repeal certain acts relating thereto," approved May 4, 1886. (Approved May 22, 1894.)

Whereas it is said that tuberculosis in cattle prevails in some sections of this State, whereby the health of our citizens is imperiled: Therefore,

SECTION 1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That the President of the State Board of Agriculture shall appoint five persons, citizens and taxpayers of this State, who, together with himself and the Secretary of the State Board of Agriculture, shall constitute a commission, who shall, at the request of two members of the State Board of Health or the State Dairy Commissioner or any owner of suspected animals, investigate the existence of tuberculosis, or cause the same to be investigated, and if any such disease is found to exist, to enforce such regulations in relation to the same as the said commission may adopt.

SEC. 2. *And be it enacted*, That when any animal or animals shall be slaughtered by direction of said commission, the value of the same shall be ascertained and appraised by three disinterested freeholders, resident in this State, who shall make and sign certificates thereof in the presence of a witness, who shall attest the same. Such appraisement shall be made on the basis of the market value of the animal or animals slaughtered just prior to the time when they became so diseased, and shall be limited to the sum of $100 for registered animals and to $40 for all others. One-half of the valuation so ascertained shall be paid by the State on the presentation of such certificate, with the approval of the said commission indorsed thereon, to the owner or owners.

SEC. 3. *And be it enacted*, That it shall be the duty of said commission to keep a full and complete record of all their proceedings under this act and report the same annually to the State Board of Agriculture, and such a report shall be printed in and form a part of the annual report of the State Board of Agriculture.

SEC. 4. *And be it enacted*, That the sum of $5,000 is hereby annually appropriated to said commission to defray its expenses and the value of the cattle to be slaughtered by its direction: *Provided*, That no other compensation shall be allowed said commission than the expenses actually incurred in the execution of the duties hereby imposed.

SEC. 5. *And be it enacted*, That all bills for money expended under this act shall be audited by the Comptroller of this State and then submitted to the Governor for his approval; and after being thus audited and approved by the Governor shall be paid by the State Treasurer upon the warrant of the Comptroller.

SEC. 6. *And be it enacted*, That this act shall be deemed a public act and shall take effect immediately.

A FURTHER SUPPLEMENT to an act entitled "An act concerning contagious and infectious diseases among animals, and to repeal certain acts relating thereto," approved May 4, 1886. (Approved March 28, 1895.)

Be it enacted by the Senate and General Assembly of the State of New Jersey, That the second section of the act entitled "A supplement to an act entitled 'An act concerning contagious and infectious diseases among animals, and to repeal certain acts relating thereto,'" approved May 4, 1886, which supplement was approved May 22, 1894, be, and the same is hereby, amended to read as follows:

"SEC. 1. That it shall be lawful for the State Tuberculosis Commission to employ one of their number as secretary of the commission, and to fix by resolution such compensation for his services as they, in their judgment, may deem reasonable, which compensation shall be paid in monthly installments, out of the appropriation to said commission, by the State Treasurer upon the warrant of the State Comptroller.

"SEC. 2. That when any animal or animals shall be slaughtered by direction of said commission the value of the same shall be ascertained and appraised by three disinterested freeholders, resident in this State, who shall make and sign certificates thereof in the presence of a witness, who shall attest the same; such appraisement shall be made on the basis of the market value of the animal or animals slaughtered, and shall be limited to the sum of $100 for registered animals and to $40 for all others: three-fourths of the valuation so ascertained shall be paid by the State on the presentation of such certificate, with the approval of the said commission indorsed thereon, to the owner or owners: *Provided*, No compensation shall be made for animals considered by the commission to be of no value.

"SEC. 3. That whenever the State Tuberculosis Commission shall have made, or caused to be made, any examination of any animal or herd of animals within this State, and shall have ascertained such animal or herd of animals to be sound and in good health, they shall, upon request from the owner thereof, give to him a certificate in writing, signed by the president and secretary of said commission, certifying to the fact of such examination and of the good health and condition of such animal or herd of animals.

"SEC. 4. That the said State Tuberculosis Commission shall have the power to cooperate with the Bureau of Animal Industry of the United States in any general national system which may be adopted by such Bureau for the prevention of the spread of bovine tuberculosis and its eradication in the United States and its Territories.

"SEC. 5. That there shall be appropriated to the said State Tuberculosis Commission the sum of $5,000 for defraying its expenses and for payment of the proportion of the appraised value of slaughtered animals required to be paid out of the Treasury of this State, all which payments and expenses shall be made by the Treasurer of this State upon the warrants of the State Comptroller; that in cases of emergency the said commission may, with the consent of the Governor, Comptroller, and Treasurer, in addition to the sum of money hereby appropriated, expend such further sums of money for the purposes of this act, not to exceed in the whole the sum of $5,000 in any one year.

"SEC. 6. That all acts and parts of acts inconsistent with this act be, and the same are hereby, repealed, and that this act shall take effect immediately."

A FURTHER SUPPLEMENT to an act entitled "An act concerning contagious and infectious diseases among animals, and to repeal certain acts relating thereto," approved May 4, 1886. (Approved April 6, 1898.)

Be it enacted by the Senate and General Assembly of the State of New Jersey:

SECTION 1. The second section of the act entitled "A supplement to an act entitled 'An act concerning contagious and infectious diseases among animals, and to repeal certain acts relating thereto,'" approved May 4, 1886, which supplement was approved May 22, 1894, and which further supplement was approved March 28, 1895, be, and the same is hereby, amended to read as follows:

SEC. 2. Whenever the State Tuberculosis Commission shall be notified by the Secretary of the State Board of Health or the State Dairy Commissioner or any owner or owners of dairy animals requesting them to inspect animals supposed to be diseased with tuberculosis, such person as may be designated by the commission shall proceed to make such inspection and may agree with the owner or owners upon a valuation of such animals as are to be inspected. In cases where no agreement can be reached the person designated by the commission shall choose one disinterested freeholder, the owner or owners shall choose one, and the two shall designate a third, who shall ascertain and decide upon the market value of each animal to be examined by the commission, and shall sign certificates thereof in the presence of a witness, who shall attest the same. Such valuation shall in each case be made on the basis of the market value of the animals the day the valuation is made; and if, upon examination by the commission, any animals in said herd are condemned to be slaughtered, three-fourths of such valuation so ascertained shall be paid by the State to the owner or owners on presentation of such certificate with the approval of the said commission indorsed thereon: *Provided*, Such appraisement shall not exceed $40 for each animal condemned: *And provided further*, That no compensation shall be made for animals considered by the commission to be of no value.

SEC. 3. Section 5 of said act be amended to read as follows: "SEC. 5. There shall be appropriated to the State Tuberculosis Commission the sum of $10,000 for defraying the expenses and for the payment of the proportion of the appraised value of slaughtered animals under this act, all which payments and expenses shall be made by the Treasurer of this State upon the warrant of the State Comptroller: *Provided*, That no payments shall be made pursuant to this act until the amount thereof shall have been included in the annual appropriation bill."

SEC. 4. This act shall take effect immediately.

AN ACT to prevent the importation of tuberculous cattle into the State of New Jersey.

(Approved March 24, 1899.)

Be it enacted by the Senate and General Assembly of the State of New Jersey:

1. The importation of dairy cows and neat cattle for breeding purposes into the State of New Jersey is hereby prohibited, excepting when such cows and neat cattle are accompanied by a certificate from an inspector whose competency and reliability are certified to by the authorities charged with the control of the diseases of domestic animals in the State from whence such cattle came, certifying that they have been examined and subjected to the tuberculin test and are free from disease.

2. All railroad, steamboat, ferryboat, and other carrying companies are forbidden to receive cows and breeding cattle in any other State for transportation to any destination within the State of New Jersey, unless such cattle are accompanied by the required certificate, as set forth in Section 1 of this act: and all persons importing cows into the State of New Jersey shall without delay and before disposing of such animals notify the Secretary of the State Tuberculosis Commission, giving date of importation and number of cattle imported and their destination within the State with the certificate of inspection of the State official within the State from whence they came: *Provided*, That when it is desired to import such cattle from States not provided with persons with authority to issue such certificates, the Secretary of the State Tuberculosis Commission may issue a permit for the admission of such cattle to be subjected to examination, as provided for in Section 3.

3. In case cows or breeding cattle shall have been imported into the State without the required certificate and permit provided for in Section 1 of this act, or on

the permit of the Secretary of the State Tuberculosis Commission, as provided for in Section 2 of this act, it shall be the duty of the State Tuberculosis Commission to cause all such animals to be examined to detect the presence of tuberculosis, and may cause them to be subjected to the tuberculin test, and to see that all such animals giving indications of tuberculosis are slaughtered. No indemnity shall be paid by the State to the owner or owners of any tuberculous cattle that have been brought into the State without a certificate of having successfully stood the tuberculin test after November 1, 1899.

4. Any person or persons violating this act shall be guilty of a misdemeanor and, on conviction thereof, shall be punished by a fine of not less than $25 nor more than $200 for every such offense, or by an imprisonment for not less than one month nor more than six months, or by both such fine and imprisonment, and for a second offense by an imprisonment of not less than six months and not more than one year.

5. The sum of $500, or so much thereof as may be necessary, is hereby appropriated to the State Tuberculosis Commission for the enforcement of the provisions of this act, provided said amount is included in the annual appropriation bill, and the State Tuberculosis Commission is hereby empowered to enforce the provisions of this act, and to make such rules and regulations as may be necessary and proper for its enforcement.

6. This act shall take effect November 1, 1899.

RULES FOR THE ENFORCEMENT OF THE ACT OF MARCH 24, 1899.

I. No person is permitted to bring into the State of New Jersey dairy cows and cattle for breeding purposes, no matter what their condition, and dispose of the same, without having previously notified the Secretary of the State Tuberculosis Commission, giving date of importation, number of cattle imported, and their destination within the State. Such notice must be accompanied by the number and a full and accurate description of the cattle, the names and addresses of the owner and consignee, the date upon which they are to be brought into the State, the route over which they are to be driven or shipped, and the destination. A blank form to use in rendering this report will be sent upon application to the State Tuberculosis Commission. Having thus given notice, dairy cows and cattle for breeding purposes may be brought into the State of New Jersey in accordance with the following provisions:

II. The cattle may be examined and tested with tuberculin in the State from whence they come by an inspector whose competency and reliability are certified to by the authorities charged with the control of the diseases of domestic animals in that State. Special blanks for reporting upon such examinations and tags for marking and numbering those that pass the examination will be furnished by the State Tuberculosis Commission upon application. Cattle thus examined and found to be free from disease, brought into New Jersey, shall remain in the possession of the person or persons who own them when brought into New Jersey until the inspection reports have been approved by a member of the State Tuberculosis Commission, or by an agent authorized to approve such reports. After such approval the cattle can be disposed of without restriction.

III. When it is desired to bring cattle into the State of New Jersey from States having no official with authority to issue certificates of inspection (the owner having previously conformed to Rule I), such cattle may be brought in by a permit for their admission issued by the Secretary of the State Tuberculosis Commission. Such cattle, when so admitted, must be held in quarantine until they are examined for the existence of tuberculosis by the State Tuberculosis Commission. After such examination all cattle approved by the State Tuberculosis Commission or its agent may be disposed of without further restriction. Any cattle found to be affected with tuberculosis shall, after such examination, be slaughtered, and no indemnity for such condemned cattle shall be allowed the owner or owners thereof.

IV. In all examinations cattle that are approved by the test should be marked with a metal tag furnished by the Commission, and the number and description of the animal should correspond with the number on the tag.

NOTE.—This law and these rules do not apply to cattle shipped directly through New Jersey to other States.

Approved by the State Tuberculosis Commission, September 1, 1899.

FRANKLIN DYE, *Secretary*.

NEW MEXICO.

In New Mexico tuberculosis is specified as one of the contagious diseases of cattle against which legislation is directed.

Whenever the Cattle Sanitary Board has reason to believe that a contagious or infectious disease exists in any locality they shall employ a veterinarian to examine into the facts and, if it is deemed necessary, quarantine such cattle, as well as those which have been exposed to the disease. If it is the opinion of the veterinarian that such diseased or exposed animals should be slaughtered in order to stamp out and prevent the spread of the disease, he reports the same to the Sanitary Board, who causes the slaughter of such cattle. Before their slaughter, however, they are appraised, and the owner is paid the sum appraised out of the cattle indemnity fund, which is provided by a special tax.

No indemnity is paid for cattle which were diseased when brought into the Territory, nor in cases where the owner knew or had reason to believe that they were diseased, nor for cattle brought into the Territory contrary to law. Any owner who may not be satisfied with the appraisement may appeal to the district court, but such appeal shall not delay the slaughtering of the cattle.

The Cattle Sanitary Board is also empowered to employ an attorney to give advice and assist in the enforcement of the law.

LAW.

AN ACT for the prevention of contagious diseases among cattle. (Approved March 18, 1897.)

SEC. 226. Whenever the Cattle Sanitary Board of this Territory shall have reason to believe that contagious pleuropneumonia, tuberculosis, or any other contagious or infectious disease fatal to cattle exists or has become epidemic upon any premises or in any locality in this Territory, it shall be the duty of said board to employ a competent veterinarian, who shall examine and, if deemed necessary, quarantine, under such rules and regulations as the said board may prescribe, all cattle suspected of being diseased or that have been exposed to such disease.

SEC. 227. Whenever it shall be necessary, in the opinion of said veterinarian, in order to stamp out and prevent the spread of such disease, that the diseased cattle and those that have been exposed thereto, should be slaughtered, he shall report the same to said Sanitary Board, and if the said board be satisfied of the correctness of said report and the necessity therefor, they shall cause such cattle to be slaughtered under the direction of the board or said veterinarian, and the carcasses to be disposed of as the board may direct.

SEC. 228. Prior to such slaughtering the board shall appoint one disinterested person, resident of the county wherein such cattle are to be slaughtered, who shall act with a like disinterested person to be appointed by the owner of such cattle, and fix the price to be paid out of the cattle indemnity fund or the funds realized from the special tax provided for in Section 20 of Chapter 106, Session Acts of 1889, as an indemnity for the slaughter of such animals, and in event said two appraisers are unable to agree, they shall choose a third disinterested resident of said county to act with them in such appraisement.

SEC. 229. All claims for indemnity for cattle slaughtered under the provisions of this act shall be presented to the board, with the sworn certificate of such appraisers, and shall be paid out of any funds at the disposal of said board not otherwise appropriated: *Provided*, That no indemnity shall be paid for cattle which were diseased when brought into this Territory or which the owner thereof knew or had reason to believe were so diseased when they came into his possession, nor for any cattle brought into the Territory contrary to law. Any person aggrieved by such appraisement and award may appeal to the district court for the county in which said cattle were slaughtered, but such appeal shall not delay the slaughtering of such cattle; and such appeal shall be docketed and tried as appeals from justices of the peace are docketed and tried.

SEC. 230. Any person or persons, or the agent or employe of any firm or corporation who shall refuse to permit animals suspected of being diseased to be inspected, quarantined, or slaughtered, as provided in this act, or who shall wilfully interfere with said veterinarian or the Sanitary Board, or any of its officers or employes in the discharge of their duties in relation to the inspection, quarantine, or slaughter of such animals, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined for such offense in a sum of not less than $50 nor more than $100, or imprisoned in the county jail for not less than thirty nor more than sixty days, or both such fine and imprisonment, in the discretion of the court or justice trying the case.

SEC. 231. The Cattle Sanitary Board of New Mexico shall have authority to employ a competent attorney to give advice and counsel in regard to any matter connected with the duties of the board, to represent the board in any legal proceedings, and to aid in the enforcement of the laws in relation to live stock, and to fix the compensation to be paid to such attorney.

For the purpose of providing funds therefor and for the employment of additional inspectors and other necessary expenses incurred by said board, a special tax shall be levied upon all cattle in the several counties of this Territory in the manner and according to the provisions of Section 20 of Chapter 106 of the acts of the twenty-eighth session of the Legislative Assembly of the Territory of New Mexico, which levy shall be within the limit provided for in said section. Upon the order of the Governor, Auditor, and Treasurer, as provided in said section, the county commissioners of the several counties shall cause such levy to be made upon the assessed valuation of all cattle of the bovine species within their respective counties, and shall cause such tax to be collected and paid over to the Territorial Treasurer to the credit of the cattle indemnity fund.

NOTICE.

The following notice is published by the Cattle Sanitary Board:

Whenever it shall come to the knowledge of the board that tuberculosis, pleuropneumonia, or any other contagious or infectious cattle disease exists in or may be brought into this Territory from sections north of the fever quarantine line, the Governor will be advised, that he may at once issue his proclamation, as by law provided. (See Section 188, Compiled Laws of 1897.)

NEW YORK.

The legislation concerning bovine tuberculosis in New York is embodied in the sections quoted below. The work is done under the direction of the State Board of Health. Whenever the board finds the disease in any part of the State they may issue such orders and take such precautions as they may deem necessary or expedient to suppress or prevent its spread; and they may prescribe regulations for the destruction of cattle affected with tuberculosis. The board, before ordering that an animal be killed, shall first have it examined by a veterinarian of the board, and, if desired by the owner, have it appraised. The appraisement of an animal shall be at its sound value, provided that no single unregistered animal shall be appraised at more than $60. If a slaughtered animal proves to be affected with tuberculosis, the owner is entitled to receive one-half of the appraised value, provided, however, that not more than $60 shall be paid for a diseased registered animal and not more than $25 shall be paid for a diseased unregistered animal. If an animal so killed is found not to be affected with tuberculosis, the owner shall be entitled to receive the full appraised value.

No indemnity is allowed to any person who shall wilfully conceal the existence of tuberculosis or who contributes in any way toward its spread; nor shall indemnity be allowed for animals killed unless they have been owned and possessed within the State for at least three months.

The penalty for violation of any order, rule, or regulation of the State Board of Health with reference to tuberculosis in cattle is $100.

LAWS.

SECTION 60. The State Board of Health shall investigate concerning the existence and cause of tuberculosis in cattle and the danger to the public health therefrom, and shall use all reasonable means for averting and suppressing such disease. Such board may cause all proper information in its possession respecting tuberculosis in cattle to be sent to the local board of health nearest to the cattle affected, and may add thereto such useful suggestions as to the removal of the sources of danger therefrom or as to the destruction of such cattle as to such board may seem proper. The local health authorities shall supply to the State Board of Health like information and suggestions respecting the existence of tuberculosis in cattle.

SEC. 61. Whenever tuberculosis shall be found among cattle in any part of the State the State Board of Health shall take measures to suppress such disease and prevent the spread thereof, and may order all persons to take such precautions against the spread of such disease as it may deem necessary or expedient. Such board may call upon any peace officer in the neighborhood of such disease to enforce the orders of such board respecting such disease, and to observe and carry out the rules, orders, and instructions which he may receive therefrom. Such board may prescribe regulations for the destruction of cattle affected with tuberculosis, for the proper dispensation of their hides and carcasses and of all objects which might convey the infection or contagion, and for the disinfection of premises, buildings, boats, cars, stables, and other objects or places from or by which such infection or contagion might be communicated. The State Board of Health may employ such medical aid, veterinary practitioners, and other persons as it may deem necessary to assist in the inspection, isolation, destruction, or disposition of cattle affected with tuberculosis, prescribe rules and regulations for such inspectors and employes, and fix their compensation.

SEC. 62. Whenever the State Board of Health may deem it necessary for the prevention of the spread of tuberculosis in cattle, such board may cause to be killed any animal affected thereby or which, by contact with diseased animals, or by exposure or infection or contagion therefrom, such board may determine is liable to contract or communicate such disease; but no such diseased animal shall be so killed on account of tuberculosis unless first examined by a veterinary practitioner in the employ of the State Board of Health, and, if desired by the owner, appraised, as hereinafter provided. A local board of health shall, pursuant to rules and regulations prescribed by the State Board of Health, cause to be killed, every horse affected with glanders found within its jurisdiction, but no horse shall be so killed on account of glanders until the value thereof be appraised, as hereinafter provided.

SEC. 63. To determine the value of such animal the Comptroller shall designate some competent, disinterested person, residing within the judicial district in which such animal may be, to act as appraiser, with an appraiser to be selected by the owner of such animal, who shall promptly fix a time when they shall view such animal and shall proceed to appraise the value thereof. In case of a disagreement between the two appraisers, the third appraiser shall be selected by them, and the estimate of the value of either two of them shall be final. The animal shall be appraised at its sound value: *Provided, however*, No single unregistered animal shall be appraised at more than $60, and no horse affected with glanders shall be appraised at more than $50. Each appraisal shall be in writing, signed by the appraiser or appraisers agreeing, and shall be delivered by them, if the animal be suspected of tuberculosis, to the veterinary practitioner in charge of such animal, and if the animal be a horse affected with glanders, to the secretary of the local board of health having jurisdiction thereof. Upon the delivery of such appraisal, such animal shall be killed, as hereinbefore provided; and if it be killed on account of tuberculosis, the veterinary practitioner in charge thereof shall forthwith make a postmortem examination of the animal, and if it shall be discovered on such postmortem examination that the animal was affected by tuberculosis, the owner of the animal shall be entitled to receive one-half of the appraised value: *Provided, however*, That not more than $60 shall be paid for a diseased registered animal and not more than $25 shall be paid for a diseased unregistered animal; but if such examination of the animal killed on account of tuberculosis discloses that the animal was not affected with tuberculosis, the owner shall be entitled to receive the full appraised value. The written appraisal of the value of an animal killed on account of tuberculosis, and a written statement of the result of the postmortem examination thereof, signed by the veterinary practitioner in charge thereof, shall forthwith be transmitted by such veterinary practitioner to the Secretary of the State Board of Health, who shall file the same in his office. The secretary of the local board of health having jurisdiction in the case of a horse affected with glanders shall, in case such horse is killed, upon receipt of the written appraisal, signed by the appraiser or appraisers, as hereinbefore provided, forthwith make and sign a certificate of such fact, and transmit such appraisal and certificate to the Secretary of the State Board of Health, who shall file the same in his office. Upon receipt from the veterinary practitioner, in case of an animal killed on account of tuberculosis, or from the secretary of the local board of health having jurisdiction in the case of a horse killed on account of glanders, such Secretary of the State Board of Health shall forthwith make a written certificate, signed by him, setting forth the name and post-office address of the owner of the animal killed, and the amount which such owner is entitled to be paid on account of the killing of such animal, and shall forthwith transmit such certificate to the Comptroller, who shall issue his warrant upon the Treasurer for the payment to such person of the amount so certified, and shall mail the same to such person at his postoffice address as it appears by such certificate. No compensation shall be allowed to any person who shall have wilfully concealed the existence of tuberculosis or glanders among his animals or upon his premises, or who, directly or indirectly, by act or wilful neglect, shall have contributed to the spread of such disease or either of them; and no compensation shall be made under the provisions of this act to any owner for animals killed unless the animal or animals killed shall have been actually owned and possessed by the owner thereof within this State for a period of three months prior to such condemnation. The appraisers to be appointed as aforesaid, by the Comptroller, shall hold office during the pleasure of the State Board of Health. Each appraiser so appointed shall receive as compensation the sum of $5 per day for each day actually employed, and shall also be paid his actual necessary disbursements; but no claim for services or disbursements shall be allowed or paid unless accompanied by a verified detailed statement thereof.

SEC. 64. Any person refusing to obey, or violating an order, rule, or regulation of the State Board of Health respecting tuberculosis in cattle, adopted pursuant to law, shall be liable to a penalty of $100, recoverable by the State Board of Health, and applicable to the payment of the expenses of such board in carrying out the provisions of this article.

SEC. 65. The State Board of Health may appoint two of its members as a committee, whose particular duties shall be to carry out the provisions of the public health law relating to tuberculosis in cattle, and such members so appointed shall be entitled to receive a salary of $250 per month and any necessary expenses, and they shall hold office for one year. Such committee shall keep a complete record of all the work done, and submit monthly reports thereof to the State Board of Health.

NORTH CAROLINA.

AN ACT to repeal Chapter 85, Laws of 1897, and to re-form the Department of Agriculture Immigration, and Statistics. (Ratified March 4, 1899.)

The General Assembly of North Carolina do enact:

SECTION 1. That Chapter 85 of the Public Laws of 1897 and all other laws inconsistent with this act be, and the same are hereby, repealed.

* * * * * * *

SEC. 7. The Board [of Agriculture] shall investigate and promote such subjects relating to the improvement of agriculture, the beneficial use of commercial fertilizers and composts, and for the inducement of immigration and capital as they may think proper, but they are especially charged—

* * * * * * *

(2) With investigations adapted to promote the improvement of milch and beef cattle, and especially investigations relating to diseases of cattle and other domestic animals, and shall publish and distribute from time to time information relative to any contagious diseases of stock, and suggest remedies therefor, and shall have power in such cases to quarantine infected animals, to regulate the transportation of stock in this State, or from one section of it to another; and may cooperate with the United States Department of Agriculture in establishing and maintaining cattle districts or quarantine lines, to prevent the infection of cattle from splenic, or Spanish, fever. Any person wilfully violating such regulations shall be guilty of a misdemeanor.

REGULATIONS.

Under authority of this act, the Board of Agriculture, on December 7, 1899, adopted "regulations for the control of contagious diseases of live stock." The sections of these regulations which are considered to embrace tuberculosis are as follows:

REGULATIONS.

SECTION 8. When the Commissioner of Agriculture shall have good reason to believe, or has received credible information, that a contagious or infectious disease exists among the live stock of this State, or, in case of the nonquarantine territory, that cattle ticks exist on cattle therein, the commissioner shall cause the State Veterinarian or other assistant to investigate said live stock, premises and buildings where the live stock suspected of being diseased or harboring the cattle ticks are kept, and examine said live stock or animals which have come in contact with the aforesaid live stock, for the presence of said suspected disease or cattle ticks.

SEC. 9. Whenever any contagious or infectious disease of live stock shall exist in any portion of the State, or cattle ticks in exempted districts, the infected live stock or infected material which may convey disease, or both, or animals which may have come in contact with such disease, shall be quarantined by the Commissioner of Agriculture on the premises, or in lots or buildings in which they may be found, until such time as danger from the spread of disease is past and all necessary disinfection is completed. The Commissioner of Agriculture is hereby directed to make, publish, and enforce all other rules and regulations temporarily necessary to prevent the spread of contagious and infectious disease in live stock, and cause the disinfection of infected premises by the tenant, owner, or owners, whenever and wherever necessary.

SEC. 10. Whenever any contagious or infectious disease prevails among live stock in any State or Territory of the United States, or any foreign country, live stock from said State or Territory, shall not be admitted to this State except when accompanied by a description or tag, or both, and certificate of absence of disease, or of contact with diseased animals, for thirty days prior to shipment of such live stock, which certificate shall be approved by the State or Territorial Cattle Commissioner, board of health, or veterinarian in charge of the execution of live stock sanitary laws in the State whence the cattle originate, or, in the case of a foreign country, by the Secretary of the United States Department of Agriculture, and be submitted to and acceptable to the Commissioner of Agriculture; said certificate shall be presented before or at the time of the importation of the said live stock into this State.

SEC. 11. The Commissioner of Agriculture shall, upon application of the Superintendent, or authorities, or live stock men of any county, temporarily forbid the entrance of any species of live stock from any infected county or counties until such time as danger of infection from said infected county or counties is past; this local quarantine shall be published in local newspapers, and sufficient notices shall be posted by the Commissioner of Agriculture on the highways at the county line.

SEC. 12. The Commissioner of Agriculture is hereby directed to publish the cattle quarantine laws and these regulations for control of contagious diseases of live stock, together with such maps as may be necessary, and such other information as may pertain thereto, and distribute among the cattlemen of this State.

SEC. 13. These regulations shall be in force on and after January 1, 1900, and supersede those adopted by this board June 2, 1899.

INTERSTATE LIVE STOCK TRAFFIC RESOLUTION.

At the meeeting of the Board of Agriculture held in Raleigh, March 7, 1900, the following resolution, proposed by the committee on contagious diseases of cattle, was passed without dissent:

Whereas a regulation has already been made by this Board providing that all cattle shipped here or otherwise introduced from other States, where contagious diseases exist, shall be accompanied by certificates of good health; and

Whereas this regulation has not yet been put in force, and, further, many other States have already taken similar action: Be it

Resolved, That the Commissioner of Agriculture shall be instructed at once to take the necessary steps to secure the enforcement of this regulation.

In accordance therewith the following notices are issued:

1. To stock breeders of North Carolina.
2. To all railroad, express, and steamship companies and common carriers doing business in North Carolina; and
3. To live-stock sanitary authorities.

These notices call attention to the enforcement of the regulation in question, and it is expected that all will carry out its spirit and letter.

S. L. PATTERSON, *Commissioner.*
COOPER CURTICE, *Veterinarian.*

NORTH CAROLINA DEPARTMENT OF AGRICULTURE,
Raleigh, May 1, 1900.

To Stock Breeders of North Carolina:

You are hereby notified that dangerous, destructive, communicable diseases exist in various parts of the United States, to wit: Glanders and farcy in horses and mules, cattle ticks on and tuberculosis in cattle, scab on sheep and other animals, and hog cholera in swine.

Section 10 of the Regulations of the Board of Agriculture, adopted December 7, 1899, to prevent the introduction of such communicable diseases, forbids the admittance into this State of all live stock except when accompanied by a certificate of the live stock sanitary authorities of the State whence the live stock originate, that the said live stock are healthy in every respect.

In purchasing live stock outside the State, inform the breeder of whom you buy that a certificate of health obtained from his live-stock authorities, and bearing the indorsement of this department, must accompany the shipment, in order to avoid trouble, vexatious delays, extra expense, and introduction of disease. The certificate must include a tuberculin examination of cattle for all purposes other than immediate slaughter, or steers for feeding or work.

By careful attention to these points the breeding herds of this State may be kept free from diseases which are now harassing breeders of other States.

Fifteen other States have now legislation to compel the examination of breeding and dairy stock before or at the time of importation.

When breeders design shipping to other States, they should comply with their regulations, and avoid delays and entailed expense upon the arrival of the stock in those States.

Those transferring cattle within the State are especially cautioned about accepting stock that have not been tested. Examinations save much trouble and loss, and guarantee healthy herds, if persevered in.

Refer any question upon sanitary matters to this department.

I am, very respectfully, yours,

S. L. PATTERSON, *Commissioner.*
COOPER CURTICE, *Veterinarian.*

NORTH CAROLINA DEPARTMENT OF AGRICULTURE,
Raleigh, May 1, 1900.

To all railroad, express, and steamship companies and common carriers doing business in North Carolina:

You are hereby notified that by virtue of the power conferred in the act of General Assembly of North Carolina, entitled "An act to repeal Chapter 85 of the Laws of 1897, and to reform the Department of Agriculture, Immigration, and Statistics," ratified March 4, 1899, which act directs the Board of Agriculture to quarantine animals infected with contagious diseases, to regulate the transportation of stock in this State, or from one section of it to another, and to cooperate with the United States Department of Agriculture in establishing and maintaining cattle districts or quarantine lines, to prevent the infection of cattle from splenic, or Spanish, fever, etc., the Board of Agriculture of this State did, on December 7, 1899, make such regulations to take effect January 1, 1900, and supersede regulations adopted by it on June 2, 1899.

By consulting the enclosed regulations and those of the United States Department of Agriculture promulgated at various dates you will note that they are of particular interest to you as common carriers of live stock and as participants in the development of a live-stock industry in this State. The particular orders of the United States Department of Agriculture referred to are its organic law creating the Bureau of Animal Industry, approved May 29, 1884; the recent amendments thereto; B. A. I. Order of April 15, 1887; its amendment dated December 13, 1895, and B. A. I. Orders Nos. 49, 54, 56, and 57.

Your attention is invited to the following points:

1. Under these regulations you can not legally handle any cattle consigned from the quarantined portion of the United States to the counties of this State that have been exempted from quarantine by the United States Secretary of Agriculture.

2. Under Section 7 of the State board regulations you can neither legally deliver nor receive any tick-infested cattle into stock yards of any exempted or any stock-law districts of this State. By carelessness of your agents in this respect the cattle pens west of the Blue Ridge have been closed by the Federal Government, and may be again, thus causing quarantine of all stock in that region. The enforcement of the order in the stock-law region east of the Ridge will hasten the day when it may be relieved from the burdensome restrictions of cattle traffic now placed upon it.

3. Under Section 10 of the board regulations you can not legally deliver live stock shipped into this State unless the animals are accompanied by a certificate of absence of disease, given by the live stock sanitary authorities of the State whence the live stock originates, and approved by this department. Shipping tags bearing the acceptable form of certificate will be supplied to sanitary authorities by this department.

Owing to the presence of communicable diseases in other States, fifteen of these have enacted laws excluding diseased live stock. In order to prevent their shipment into this State the above regulation has become necessary. A few diseased animals introduced into our breeding herds will produce injury from which it will take years to recover. In demanding that the certificate of health shall accompany each shipment, the transportation companies are relieved of attention to the matter further than to see that each shipment bears the certificate, and refuse it without. This method least interferes with traffic when once understood.

Your authority for refusing to ship live stock without certificate is contained in B. A. I. Order, dated December 13, 1895. This prohibits the interstate transportation of animals affected with hog cholera, tuberculosis, or sheep scab, and B. A. I. Order No. 56, dated December 28, 1899, which adds other diseases and live stock, including horses and goats, to the list. Since transportation companies can not act as experts in the detection of diseases in the live stock submitted to them for transportation, they may well insist that such stock be certified by the authorities of the State where accepted.

In assisting in this movement to secure healthy breeding stock for the farms in this State and in preventing the spread of dangerous communicable diseases, you will aid in the upbuilding of the farming industry and add materially to the increased traffic which is dependent upon it.

I am, very respectfully, yours,

S. L. Patterson, *Commissioner.*
Cooper Curtice, *Veterinarian.*

NORTH CAROLINA DEPARTMENT OF AGRICULTURE,
Raleigh, May 1, 1900.

To live stock sanitary authorities.

GENTLEMEN: You are hereby notified that the Board of Agriculture of this State has passed the accompanying regulations, which includes one to prevent the introduction of diseases into this State through the importation of diseased live stock from other States or foreign countries. See Section No. 10. You will please notify your breeders of this action.

The words "live stock" as therein used are synonymous with the word "animals" as used in the Federal regulations. See B. A. I. Order No. 56, page 2. It includes horses, asses and mules, neat cattle, sheep, and other ruminants, and swine.

The word "disease" especially includes any of the following:

Glanders and farcy, distemper, anthrax, Texas, or splenetic, fever, cattle ticks (*Boophilus bovis*), tuberculosis, actinomycosis, variola, foot rot, scab, hog cholera, and swine plague, as specified in said order No. 56, but does not exclude other communicable diseases.

Shipping tags which must accompany shipments into this State will be furnished each Live Stock Sanitary Board or other authority on application. When used they should each be signed by the chief officer of the board or other authority and its veterinarian in the places left for the purpose. Descriptions of the animals must include such data as will serve to identify them, and must be written on the back of the tags.

The certificate which is acceptable is a duplicate of the shipping tag, and must be sent to this department. All practicable known means of determining the absence of disease must be used by the inspector. A sworn copy of the tuberculin test in case of cattle designed for breeding or dairy purposes must accompany the certificate. The tuberculin test should state the amount and manufacturer of the tuberculin used, give the temperatures taken at two hour intervals from the tenth to the eighteenth hour after injection, and other customary data. The test should especially state at what times previous tests had been made and the results. Examinations must be made by men approved by you.

In insisting that the State which you represent presents satisfactory evidence that live stock destined for this State are healthy, this department takes what it believes is the most economical method of dealing with live-stock control for all concerned, and thereby avoids tedious delays and expenses after shipment of such live stock, which delays are incidental upon enforcement of quarantines and inspections en route.

Your State has the necessary means of investigating surroundings and is especially interested in the upbuilding of its live-stock industry and the reputation of the healthfulness of its stock as breeding animals.

This department, in turn, proposes to furnish certificates of health for all live stock exported to such of the States as demand them.

I am, very respectfully, yours,

S. L. PATTERSON, *Commissioner.*
COOPER CURTICE, *Veterinarian.*

NORTH DAKOTA.

The law of North Dakota mentions tuberculosis as one of the contagious diseases of domestic animals. The provisions of the law are carried out by a Chief State Veterinarian, assisted by district veterinarians. The duties of the Chief State Veterinarian are to examine into all reports of contagious or infectious diseases in the State; to instruct district veterinarians as to the treatment of diseased animals; to furnish material for diagnosing contagious diseases; to issue quarantine regulations, after approval by the Governor; to issue rules and regulations, upon approval of the Governor, for carrying out the purposes of this act.

The district veterinarian may order the slaughter of any animal which he believes to be diseased, after notifying the owner of his proposed action. If the owner feels aggrieved at such decision he may demand a consultation of district veterinarians, who shall decide upon the proper action to take.

When it is desired to bring cattle into the State without a certificate of health from a duly authorized veterinarian, owners shall give notice to a district veterinarian. It is made the duty of owners, if they suspect that there are upon their premises animals having a contagious or infectious disease, to report the fact to the district veterinarian, and to confine such animals in a place isolated from all other animals until the arrival of the district veterinarian, who shall have full authority to take possession, treat, and dispose of such animals.

LAW.

AN ACT to prevent the spread of contagious, infectious, and epidemic diseases among domestic animals, creating the office of Chief State Veterinarian, prescribing the duties thereof, and appropriating money for the necessary expenses thereof. (Approved March 23, 1895.)

Be it enacted, etc.:

SECTION 1. The professor of veterinary science of the State Agricultural College is hereby made Chief State Veterinarian, who shall serve as such without salary. and who shall, upon entering upon his duties, take an oath to well and truly perform all the duties required of him by law, which said oath shall be taken before any judge of a district court, or notary public within the State, and shall be filed with the Secretary of State.

SEC. 2. The State shall be divided into seven "veterinarian districts," in each of which there shall be appointed by the Governor, by and with the consent of the Senate, one competent veterinarian, who shall be known as the "district veterinarian," who shall hold their office for a term of two years from the date of their appointments, respectively, unless sooner removed for cause, and who, upon entering upon their duties, shall each take an oath to well and truly perform their duties as provided by law, which said oath shall be taken before any judge of the district court or notary public within the district of the State for which they may be appointed, and shall be filed with the Secretary of State.

SEC. 3. District No. 1 shall consist of the first judicial district. District No. 2 shall consist of the second judicial district. District No. 3 shall consist of the third judicial district. District No. 4 shall consist of the fourth judicial district. District No. 5 shall consist of the fifth judicial district. District No. 6 shall consist of the sixth judicial district. District No. 7 shall consist of the seventh judicial district.

SEC. 4. The duties of said Chief State Veterinarian shall be to ascertain by personal examination, or through report from the district veterinarian, in such manner as he shall prescribe, all information that he can obtain regarding the existence of any or all contagious, infectious, and epidemic diseases in the State. He shall also make a complete and permanent record of all reports of the district veterinarians; shall make an examination of all diseased animals or portions of any such that may be forwarded to him by the district veterinarians, and upon completion of such examination shall instruct the district veterinarians in such way as he may deem proper in regard to the treatment of similar cases. It shall also be his duty to furnish material, as far as lies in his power, for the diagnosis of contagious diseases and instructions as to its uses. In case that remedies are discovered for the prevention or cure of contagious diseases, such as glanders, tuberculosis, anthrax, hog cholera, foot-and-mouth disease, and foot rot, it shall be his duty to furnish the district veterinarian, or any person or persons he may see fit to appoint, the remedies so discovered, with full directions for application. He shall also be empowered to make quarantine regulations and enforce the same, after approval and authority by the Governor. He shall further prescribe, with the consent of the Governor, the rules and regulations necessary to carry out the purposes of this act.

SEC. 5. The duties of said "district veterinarians" shall be as follows:

First. To investigate in person any and all cases of contagious, infectious, and epidemic diseases among cattle, horses, mules, sheep, asses, and other domestic animals within his district of which he may have knowledge, and which may be brought to his notice by any resident or any other person in any locality within his said district where such disease may exist; and it shall also be his duty, in the absence of specific information, to make visits of inspection to any locality within his district where he may have reason to believe that there are contagious or infectious diseases existing among such domestic animals.

Second. To seize and inspect in person at the State line bordering on his district any horses, mules, cattle, asses, sheep, or other domestic animals which may be unloaded temporarily or consigned to any point within his district of the State, when the owner, agent, or person in charge thereof shall not upon demand produce certificates of health of such animals satisfactory to him from a duly authorized State or district veterinarian or examiner of the State from which said animals have been shipped.

Third. To examine in person, so often as he may deem reasonable, all pens, inclosures, and cars within the district within which domestic animals may be confined or transported, and to require the owner, agent, or person in charge of all such pens, inclosures, and cars to keep the same in proper sanitary condition.

Fourth. To require in person the owner, agent, or person in charge of all pens, inclosures, or cars within which domestic animals may be confined or transported to cleanse, fumigate, and disinfect all pens, inclosures, or cars within which such domestic animals may be confined or transported, within two days after written notice, when, in his opinion, such cleansing, fumigating, and disinfection shall be necessary for the prevention of the spread or outbreak of any contagious or infectious disease among such animals.

Fifth. It shall also be the duty of the district veterinarian in person to seize and inspect all domestic animals coming into and to remain within his district of the State without a certificate of the health of such animals from a duly authorized State or district veterinarian or examiner from the State from which said animals have been shipped, and before such animals shall be allowed by the district veterinarian to be transported into and to remain within the State. In addition to such inspection, he shall, in person, require from the owner, agent, or person in charge of such animals an affidavit to the effect that such animals have not been exposed to any infectious or contagious disease for a period of at least ninety days prior to the making of such affidavit; and in case that the district veterinarian shall have reason to believe that any domestic animals have been exposed to or have contracted any contagious or infectious disease it shall be his duty to seize and inspect such animals, notwithstanding any certificate of their health by any veterinarian or examiner of any other State, and report the same to the Chief State Veterinarian.

SEC. 6. Whenever any domestic animals are seized and inspected under the provisions of this act by the district veterinarian while such animals are being transported in cars, on shipboard, or brought into the State in any other manner, the district veterinarian making such seizure and inspection shall require the owner, agent, or person in charge of such animals to pay one-half cent each for the inspection of sheep and twenty-five cents each for all other animals named herein. All money so collected shall be immediately transmitted to the Chief State Veterinarian, together with a detailed report of the seizure and inspection; and it shall be the duty of the Chief State Veterinarian to transmit monthly all money collected as inspection fees under the provisions of this act to the State Treasurer, who shall receipt to the Chief State Veterinarian. All such fees shall be paid by the State Treasurer into the State Treasury general fund: *Provided*, That no inspection shall be made by any district veterinarian of any domestic animals in transit through the State without special instructions from the Chief State Veterinarian where the owner, agent, or person in charge thereof shall produce certificates of the health of such animals from a duly authorized veterinarian or examiner from the State from which said animals have been shipped.

SEC. 7. In all cases of contagious or infectious diseases among domestic animals in this State the district veterinarian shall have authority to order the quarantine of the infected premises and animals within his district, and upon such order to immediately report the same to the Chief State Veterinarian, and in case such disease shall become epidemic in any locality where such epidemic may exist or become known to immediately notify the Chief State Veterinarian, who shall thereupon have authority to enforce a permanent quarantine and prevent the removal therefrom of any animals of the kind among which said epidemic exists until the district veterinarian of such district locality shall report such animals to be in healthy condition, and upon such a report a certificate shall be issued by the Chief State Veterinarian permitting the removal of the animals that are reported to be healthy. The expense of holding and taking care of all animals quarantined under the provisions of this act shall be paid by the owner, agent, or person in charge of the same.

SEC. 8. In case of any epidemic diseases where premises and animals have been previously quarantined by order of the Chief State Veterinarian or by the district veterinarian, as hereinbefore provided, the district veterinarian is further authorized and empowered, when in his judgment it is necessary, to order that any and all diseased animals shall be quarantined at such places and in such a manner as he shall direct, and shall be held in such quarantine until released by certificate of the Chief State Veterinarian, as provided in Section 7 of this act; and in case the district veterinarian shall find that any one or more of the animals so quarantined are so diseased that it becomes necessary to destroy the same to prevent the spread of such disease to other animals, he shall at once serve, in person, a written notice of his intention to destroy upon the owner, agent, or person in charge of the animals so quarantined and condemned; and if such owner, agent, or person in charge of such animals feels aggrieved by the decision of the district veterinarian, and shall desire a consultation of veterinarians, notice in writing to that effect must within twenty-four hours thereafter be served upon the district veterinarian issuing the notice, and it is hereby made the duty of the resident district veterinarian to summon two district veterinarians from adjoining districts to appear and assist in diagnosing and pronouncing upon the character of the disease with which said animal or animals are supposed to be infected; and in case all three district veterinarians, or any two of them, declare said disease to be contagious or infectious in its character, and that such animal or animals should be destroyed to prevent the spread of such disease to other animals, the district veterinarian of the district wherein the animal or animals are located shall immediately slaughter such animal or animals, and not otherwise, and shall then make in duplicate a written statement, setting forth distinctly the nature of the disease for which such animals were condemned and destroyed, to be served on each owner thereof, the original of each order to be filed by the district veterinarian with the Chief Veterinarian and the duplicate thereof given to the said owner, agent, or person in charge of said condemned animals. It shall be the duty of the owner, agent, or person in charge of any and all animals slaughtered under the provisions of this act to immediately bury the carcass of such slaughtered animals in a trench at least six feet in depth and at least four feet beneath the surface of the ground, or burn and consume such carcasses under the direction of the district veterinarian; and it is hereby made the duty of the district veterinarian, in person, to require the owner, agent, or person in charge of such slaughtered animals within his district to immediately bury or burn under his personal supervision the carcasses of such slaughtered animals, as herein provided, except in all cases where the cause of death is due to anthrax, when they shall immediately be burned.

SEC. 9. Each district veterinarian shall make a report at the end of every three months, and at such other times as may be required, to the Chief State Veterinarian, of all matters connected with his work, the forms of such reports to be furnished by the Chief State Veterinarian; and the Chief State Veterinarian shall transmit to the several boards of county commissioners, as often as he deems necessary, such parts of said reports as may be of general interest to the breeders of live stock, and he shall also give information, in writing, as soon as he obtains it, to the various boards of county commissioners, of each case of suspicion or fresh outbreak of disease in any locality, its causes, and the measures adopted to check it.

SEC. 10. It shall be the duty of any owner, agent, or person in charge of any cattle, horses, mules, asses, sheep, or other domestic animals, where such owner, agent, or person in charge thereof intends to bring any such animals into the State for distribution, sale, transportation, or permanent location therein, without a certificate of their health from a duly authorized veterinarian or examiner of the State from which such animals are shipped, to give notice in writing to the district veterinarian of the district of the State bordering on the State line from which said animals [are] brought at least three days before such animals are brought into this State beyond the quarantine station at the State line of such district; and it shall be the duty of any person or persons who shall have knowledge or suspect that there is upon his or their premises or upon the public domain any case of contagious, infectious, and epidemic disease among domestic animals, to immediately report the same to the district veterinarian of the district wherein such animals or cattle may be, and a failure so to do, or any attempt to conceal the existence of such diseases, or a failure to give notice before passing the quarantine station at the State line of said district, as in this section required, or to wilfully or maliciously obstruct or resist or disobey any order issued by the Chief State Veterinarian or the district veterinarian, or in any way interfere with the discharge of their duties, as set forth in this act, shall be deemed a misdemeanor, and any person or persons who shall be convicted of any one of the above acts or omissions shall be fined not less than $50 nor more than $2,000 for each and every such offense; and upon conviction of such offense a second time shall, in addition to the above-named fine, be imprisoned in the county jail of the county wherein convicted, or as otherwise provided by law, for a term of not less than ninety days nor more than one year.

SEC. 11. The following resolutions shall be observed in all cases of disease discovered by this act:

First. It shall be unlawful to sell, give away, or in any manner part with any animal affected with or suspected of being affected with any contagious or infectious disease; and in case of any animal that may be known to have been affected with or exposed to any such disease within one year prior to such disposal, due notice of the fact shall be given in writing to the party receiving the animal.

Second. It shall be unlawful to kill for butcher purposes any such animal; to sell, give, or use any part of it or its milk, or to remove any part of the skin. A failure to observe these provisions shall be deemed a misdemeanor, and, on conviction, shall be punished by a fine not less than $100 nor exceeding $2,000; and, in addition to the above-named fine, be imprisoned in the county jail for a term of not less than ninety days nor more than one year. It shall be the duty of the owner, agent, or person having in charge any animal infected with or suspected of being infected with any contagious or infectious disease, to immediately confine the same in a safe place, isolated from all other animals, and with all necessary restrictions to prevent the dissemination of the disease until the arrival of the district veterinarian within and for the district wherein the same may be at the time. The above regulations shall apply as well to animals in transit through the State as to those resident therein, and the district veterinarian shall have full authority within his district to examine, whether in yard, pasture, or stables, or upon the public domain, all animals passing through the State within his district or any part of it, and on detection or suspicion of disease, take possession of and treat and dispose of such animals in the same manner as is prescribed for animals resident within the State.

SEC. 12. Each of said district veterinarians shall receive for their [his] services the sum of $600 per annum. The payment of such salary shall be made from any funds in the State Treasury not otherwise appropriated, monthly, upon itemized vouchers. signed and sworn to by each for his separate district and submitted to the State Auditor, who shall draw warrants upon the State Treasurer for the amount thereof, if found correct, separately. No person shall be competent under this act to receive the appointment of district veterinarian who is not at the date of his appointment a graduate in good standing of a recognized college of veterinary surgeons, or who has not practiced veterinary surgery within the State for at least five years. Before entering upon the discharge of his duties he shall give a bond to the State of North Dakota, with a good and sufficient surety, in the sum of $2,000, conditioned on the proper discharge of the same. No constructive mileage shall be paid under this act, nor shall the district veterinarian receive any mileage except when called in cases of consultation, as hereinbefore provided, when he shall receive actual expenses paid by him.

SEC. 13. The district veterinarians shall select the place or places within their respective districts at which all animals referred to herein shall be quarantined.

SEC. 14. All fines collected under the provisions of this act shall be paid into the general funds of the State.

SEC. 15. It is hereby made the duty of the Attorney-General or State's attorney of the respective counties of the veterinarian district to prosecute any case complained of by the district veterinarian of such district for prosecution in any justice or district court within the jurisdiction of which any violation of this act may have been had, and on conviction of violation of any of the provisions of this act the court, in addition to the penalties prescribed by law, shall add thereto reasonable attorney's fees, as it may be determined just in the premises.

SEC. 16. [Refers to sheep.]

SEC. 17. [Refers to sheep.]

SEC. 18. [Refers to sheep.]

SEC. 19. In addition to the duties of the Chief State Veterinarian hereinbefore described, he shall make an annual report to the Governor on or before the first day of December of all matters connected with his work, and in addition thereto may, from time to time, as in his judgment seems best, publish bulletins for general distribution, giving information as to the existence of animal diseases in the State, and such suggestions thereto as to care and treatment as he thinks proper.

SEC. 20. For the purpose of carrying out the provisions of this act as herein set forth there shall be appropriated, out of any money in the State Treasury not otherwise appropriated, an annual sum of $3,600 with which to pay the salaries of the district veterinarians, and the further annual amount of $500 for stationery, clerk hire, and all traveling and other necessary expenses of the Chief State Veterinarian.

SEC. 21. In case of any serious outbreak of any contagious, infectious, or epidemic diseases among domestic animals which can not be supervised by the district veterinarian, the Chief State Veterinarian shall at once notify the Governor, who shall thereupon appoint a sufficient number of deputies to perform the required duties at such compensation as he may deem proper, not to exceed $5 per day for the actual time employed, the same to be paid out of the general fund of the State upon vouchers duly approved by the Governor and the Chief State Veterinarian.

SEC. 22. All acts and parts of acts in conflict with the provisions of this act are hereby repealed.

SEC. 23. An emergency exists in that the existing law is inadequate to prevent the spread of contagious and infectious diseases among domestic animals within the State, this act should take effect prior to July 1, 1895: Therefore this act shall take effect and be in force from and after its passage and approval.

OHIO.

No special legislation with reference to bovine tuberculosis is on the statutes of Ohio, but the Board of Live Stock Commissioners may deal with the disease as one of the "dangerous and fatal diseases among domestic animals."

The board is authorized to use all proper means to prevent the spread and provide for the extirpation of all such diseases. Owners of animals affected with any infectious or contagious disease must immediately report the fact to the board, who shall cause an examination by a veterinarian. If the animals are found to be diseased or to have been exposed to disease, they shall be quarantined. The board must also prescribe such regulations as they may deem necessary to prevent the contagion from spreading.

It is also unlawful to bring into the State or to sell or dispose of any animal known to be affected with a contagious or infectious disease, except under such conditions as the board may prescribe. The penalty for violation is not to exceed $500.

Whenever the Governor believes that any such disease exists in any locality in another State or Territory, he shall prohibit, by proclamation, the importation of any live stock of the kind diseased into the State, except as may be prescribed by the State Board of Live Stock Commissioners.

There is no provision for indemnity for cattle which may be slaughtered on account of tuberculosis.

LAW.

(From Bates's Annotated Ohio Statutes, 1897.)

(4211-9) SECTION 1. The Governor shall, with the advice and consent of the Senate, appoint three persons, who shall constitute a Board of Live Stock Commissioners, who shall hold their office in the order in which they are named, the first for one year, the second for two years, the third for three years, and their successors in office shall be appointed for three years each. They shall meet as soon as practicable after their appointment, and, after taking the oath of office, shall appoint from their number a president and secretary.

(4211-10) SEC. 2. The Board of Commissioners are authorized to use all proper means to prevent the spread of dangerous and fatal diseases among domestic animals, and to provide for the extirpation of such diseases; and in the event of any such contagious or infectious disease breaking out in the State it shall be the duty of all persons owning or having in charge animals infected with the same to immediately notify said Board of Commissioners, or some member thereof, of the existence of such disease; and thereupon it shall be the duty of said board immediately to cause proper examination thereof to be made by a competent veterinarian; and if said disease shall be found to be a dangerously contagious or infectious malady, the board shall order the diseased animals, and such as have been exposed to the contagion, to be strictly quarantined in charge of such person as the board, or an authorized member thereof, shall designate, and to order any premises or farms where such disease exists, or has recently existed, to be put in quarantine, so that no domestic animal subject to such disease may be removed from or brought to the premises or places so quarantined; and the board shall prescribe such regulations as they may deem necessary to prevent the contagion from being communicated in any way from the premises so quarantined.

(4211-11) SEC. 3. The bodies of all dead animals shall be buried or burned by the owners thereof, as provided by law.

(4211-12) SEC. 4. That any person having in his possession or under his care any animal which he knows or has reason to believe is affected with a dangerously contagious or infectious disease, and does not, without unnecessary delay, make known the same to said board, or to some member thereof, or to the sheriff or constable of the proper county, to be by him communicated to said board; or any person or corporation who shall bring into this State, or sell or dispose of any animal, knowing the same to be affected as aforesaid, or any animal having been exposed to such contagion, within three months of such exposure, or shall move the animal so diseased or exposed from the quarantine to which it was ordered by the Board of Commissioners, or shall move any animal to or from any district in this State declared to be infected with such contagious disease, or shall bring into this State any animal of the kind diseased from any district outside of the State that may at any time be legally declared to be affected with such disease, without the consent of said board, except under such conditions as are or may be prescribed by said board, shall, upon conviction of either of the aforesaid offenses, be fined in any sum not exceeding $500. And all proper expense incurred in the quarantining of animals under the provisions of this act shall be paid by the owners thereof, and if the same is refused, after demand made by order of the commissioners, an action may be brought to recover the same with costs of suit, which action may be brought in the name of the State of Ohio for the use of the Board of Live Stock Commissioners. It shall be the duty of all sheriffs and constables to execute within their several counties all lawful orders of the said commissioners.

(4211-13) SEC. 5. The Board of Commissioners shall keep a record of their acts and investigations of diseases of live stock and report the same to the Governor on the first Monday of November annually, and at such other times as the Governor may order; and such parts of said report as shall be of general interest to breeders of live stock may be transmitted to the Department of Agriculture, to be published with their proceedings. Said board shall receive for their services the sum of $4 per day and necessary traveling expenses for each day any member is actually engaged in the investigation of reported cases of outbreaks of disease, as herein provided, or in arranging for the quarantine of diseased animals and other duties connected therewith; and when it becomes necessary for said board to employ any veterinarian, sheriff, constable, or such other persons as may be deemed essential to assist the commissioners in performing their duties, as set forth in this act, they are authorized to fix and certify their compensation, a properly itemized account of which shall be made out and certified by the board, and paid upon the order of the Governor.

(4211-14) SEC. 6. For the purpose of carrying into effect the provisions of this act the sum of $1,000, or so much thereof as may be necessary, is hereby appropriated out of any funds not otherwise appropriated.

(4211-15) SEC. 7. Whenever the Governor of the State of Ohio shall have good reason to believe that any dangerous, contagious, or infectious disease has become epidemic in certain localities in other States, Territories, or counties [countries], or that there are conditions which render domestic animals of such infected districts liable to convey such disease, he shall, by proclamation, prohibit the importation of any live stock of the kind diseased into the State, except under such regulations as may be prescribed by the State Board of Live Stock Commissioners and approved by the Governor.

OKLAHOMA TERRITORY.

Oklahoma has no law relative to bovine tuberculosis.

OREGON.

No special law relating to bovine tuberculosis is on the statutes of Oregon, but the disease may be dealt with under the law concerning "contagious or infectious diseases of a malignant character." The tuberculin test may be applied in accordance with Section 6 of the act below. This law provides that the Governor, Secretary of State, and President of the State Board of Agriculture are constituted a board entitled the "Oregon Domestic Animal Commission." The duty of this commission is "to protect the health of the domestic animals of the State from all contagious or infectious diseases of a malignant character," and it is empowered to establish, maintain, and enforce such quarantine, sanitary, and other regulations as it may deem necessary.

It is the duty of the State Veterinarian (who is appointed by the commission), upon the receipt of information that a contagious or infectious disease exists in any part of the State, to examine the animals reported to be diseased. If he finds the animals to be diseased, he may take prompt measures to prevent the spread of the disease, notifying the commission of his actions. The commission directs further action and prescribes such rules and regulations as in their judgment may be necessary to suppress the disease.

When the commission shall determine that there is danger that the live stock of the State may become affected with a contagious or infectious disease from the live stock of other States or Territories, they shall acquaint the Governor with the facts, and he shall issue a proclamation indicating the boundary of such quarantine and giving the orders, rules, and regulations prescribed by the commission.

If the commission decides that a diseased animal shall be killed, it appraises the value of the animal, taking into consideration its diseased condition. A certificate showing the number and kind of animals killed and the appraised value is filed with the Secretary of State, who issues a warrant upon the Treasurer for the amount. The right to indemnity does not extend to animals brought into the State in a diseased condition or from a State or Territory in which the diseases with which the animal was affected exists, nor to animals brought into the State in violation of the law or of the rules and regulations.

Animals so diseased shall not run at large, and the owner of such animals or his agent shall not sell, ship, drive, trade, or give them away, under penalty of a heavy fine. Such animals are not to be imported into the State.

The Governor may issue a proclamation prohibiting the importation of animals from States or Territories where contagious or infectious diseases exist unless accompanied by a certificate of health.

The commission is authorized to cooperate with the Bureau of Animal Industry in any efforts toward the suppression or extirpation of infectious or contagious diseases.

The general penalty for violation of any of the provisions of this act or of any of the rules and regulations of the commission is a sum not less than $10 nor more than $250.

LAW.

AN ACT to prevent the spread of contagious animal diseases. (Approved February 25, 1889.)

SECTION 1. *Be it enacted by the Legislative Assembly of the State of Oregon*, That the Governor, Secretary of State, and the President of the State Board of Agriculture are hereby created a board, under the name and style of the "Oregon domestic animal commission." Said commission shall appoint a competent and skilled veterinary surgeon for the State, who shall hold the office for two years or until his successor is appointed.

SEC. 2. Said veterinary surgeon, before he enters upon the duties of his office, shall take and subscribe to the constitutional oath of office and file the same with the Secretary of State.

SEC. 3. [As amended February 21, 1891.] The salary of the State Veterinarian shall be fixed by the commission and shall not exceed $1,500 a year and his necessary traveling expenses, and the salaries of the commissioners shall be $250 each per annum.

SEC. 4. [As amended February 21, 1891.] It shall be the duty of the commission to protect the health of the domestic animals of the State from all contagious or infectious diseases of a malignant character, and for this purpose it is hereby authorized and empowered to employ local inspectors in localities where the commission deem it essential for the protection of domestic animals from contagious diseases, and to establish, maintain, and enforce such quarantine, sanitary, and other regulations as it may deem necessary.

SEC. 5. [As amended February 21, 1891.] It shall be the duty of the stock inspector of each county, and of each local inspector, who discovers, suspects, or has reason to believe that any domestic animal or animals in his county or locality is affected with any dangerous contagious disease to immediately report such fact to the State Veterinarian.

SEC. 6. [As amended February 23, 1895.] It shall be the duty of said State Veterinarian, upon receipt of such information from a stock inspector of any county that any contagious or infectious disease does exist, to immediately examine, or deputize a competent person to examine, all animals reported to be diseased; and if he finds that such animals are infected with a contagious or infectious disease, he shall promptly take such measures as he may deem expedient and necessary to prevent the spread of the disease; he shall also immediately notify the commission of his actions, which shall be subject to the approval of the commission, who shall subsequently instruct him how to proceed and prescribe such rules and regulations as in their judgment the exigencies of the case may require for the effectual suppression and eradication of the disease; and for that purpose the State Veterinarian may list and describe the domestic animals affected with such disease and those which have been exposed thereto and included within the infected district or premises so defined and quarantined with such reasonable certainty as would lead to their identification; and no domestic animal liable to become infected with the disease or capable of communicating the same shall be permitted to enter or leave the district, premises, or grounds quarantined except by the authority of the commission. When, in the opinion of the commission, it shall be necessary to prevent the spread of contagious or infectious diseases among the live stock of the State to destroy animals affected with or which have been exposed to any such disease, it shall be determined what animals shall be killed and appraise the same as hereinafter provided and cause the same to be killed and the carcasses disposed of as in their judgment will best protect the health of domestic animals of the localities. When, in the opinion of the commission, any of the live stock of the State are infected with tuberculosis, the commission shall have the power to instruct and authorize the State Veterinarian to apply to such animals as are suspected as having tuberculosis the "tuberculin" test.

SEC. 7. When, in the opinion of the commission, it becomes necessary to restrict or regulate the traffic of domestic animals coming from other States, Territories, and counties [countries] to this State, they shall establish quarantine stations and prescribe such other rules and regulations as they may deem essential; also, may compel railroad companies that are operating railroads within the State to disinfect cars, yards, or premises and keep all stock cars in a cleanly and healthy condition that are under their control where animals affected with contagious or infectious diseases have been, and by the consent of the Governor can prohibit said companies or individual owners of railroads, steamboats, ships, and all other conveyances from bringing domestic animals into the State contrary to the regulations of the commission.

SEC. 8. When the commission shall have determined the quarantine and other regulations necessary to prevent the spread among domestic animals of any malignant, contagious, or infectious disease found to exist among the live stock of this State, or liable to be brought from other States, Territories, or countries, and given their orders, as hereinbefore provided, prescribing quarantine and other regulations, the Governor shall issue his proclamation, proclaiming the boundary of such quarantine and the orders, rules, and regulations prescribed by the commission, which proclamation may be published by written or printed handbills posted within the boundaries or on the lines of the district, premises, places, or grounds quarantined: *Provided*, That if the commission decide that it is not necessary, by reason of the limited extend [extent] of the district in which such disease exists, that a proclamation should be issued, then none shall be issued; but such commission shall give notice as may to it seem best to make the quarantine established by it effective.

SEC. 9. Whenever the commission shall direct the killing of any domestic animal or animals, it shall be the duty of the commission to appraise the animal or animals condemned, and in fixing the value thereof the commission shall be governed by the value of said animal or animals at the date of appraisement, taking into consideration its diseased condition.

SEC. 10. Whenever any live stock have been appraised and killed by order of the commission, it shall issue to the owner of the stock so killed a certificate showing the number and kind of animals killed and the amount to which the owner is entitled, and the Secretary of State shall draw his warrant on the State Treasurer for the amount therein stated, payable out of any money in the Treasury not otherwise appropriated.

SEC. 11. When any animal or animals are killed under the provisions of this act by order of the commission, the owner thereof shall be paid therefor the appraised value as fixed by the appraisement hereinbefore provided for: *Provided*, The right of indemnity on account of animals killed by order of the commission, under the provisions of this act, shall not extend to the owners of animals which have been brought into the State in a disease [diseased] condition, or from a State, country, Territory, or district in which the disease with which the animal is affected or to which it has been exposed exists, nor shall any animal be paid for by the State which may be brought into the State in violation of any law or quarantine regulations thereof, or the owner of which shall have violated any of the provisions of this act, or disregarded any rule, regulation, or order of this commission. Nor shall any animal be paid for by the State which came into the possession of the owner with claimant's knowledge that such animal was diseased or was suspected of being diseased, or of having been exposed to any contagious or infectious disease.

SEC. 12. Any person who shall have in his possession any domestic animal affected with any contagious or infectious disease, knowing such animal to be so affected, or after having received notice that such animal is so affected who shall permit such animal to run at large, or who shall keep such animal where other domestic animals not affected by or previously exposed to such disease may be exposed to such contagion or infection, or who shall sell, ship, drive, trade, or give away such diseased animal or animals which have been exposed to such contagion or infection, or who shall move or drive any domestic animal in violation of any direction, rule, or regulation, or order establishing and regulating quarantine, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more [than] $250 for each of such diseased or exposed domestic animals which he or they shall permit to run at large or keep, sell, ship, drive, trade, or give away in violation of the provisions of this act: *Provided*, That any owner of any domestic animal which has been affected with or exposed to any contagious or infectious disease may dispose of the same after having obtained from the State Veterinarian a certificate of health for such animal: *Provided, also*, That horses running on the range within this State infected with distemper, lung or mountain fever shall be exempt from the operation of this act.

SEC. 13. Any person who shall knowingly bring into the State any domestic animal which is affected with any contagious or infectious disease, or any animal which has been exposed to any contagious or infectious disease, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than $10 nor more than $250.

SEC. 14. Any person who owns or is in possession of live stock which is affected, or which is suspected or reported to be affected, with any contagious or infectious disease, who shall wilfully prevent or refuse to allow the State Veterinarian or Commissioners or other authorized officer or officers to examine such stock, or shall hinder or obstruct the State Veterinarian or other authorized officer or officers in any examination of or in any attempt to examine such stock, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more than $250.

SEC. 15. Any person or persons who shall wilfully violate or evade, or attempt to violate, disregard, or evade any of the provisions of this act, or who shall wilfully violate, disregard, or evade any of the rules, regulations, orders, or directions of the Commission establishing and governing quarantine, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more than $250.

SEC. 16. The commission provided for in this act shall have power to employ, at the expense of the State, such persons and purchase such supplies and material as may be necessary to carry into full effect all orders by it given and to pay a reasonable compensation therefor.

SEC. 17. [As amended February 21, 1891.] The commission shall have power to call upon any sheriff, undersheriff, deputy sheriff, constable, or stock inspector of any county to execute their orders, and such officers shall obey the orders of said commission, and the officers performing such duties shall receive compensation therefor as is prescribed by law for like services, and shall be paid therefor in like manner, and any officer may arrest and take before any justice of the peace of the county any person found violating any of the provisions of this act, and such officer shall immediately notify the prosecuting attorney of such arrest, and he shall prosecute the person so offending according to law.

SEC. 18. Whenever the Governor of the State shall have good reason to believe that any dangerous, contagious, or infectious disease has become epizootic in certain localities in other States, Territories, or countries, or that there are conditions which render such domestic animals from such infected districts liable to convey such disease, he shall by proclamation prohibit the importation of any live stock of the kind disease [diseased] into the State, unless accompanied by a certificate of health, given by a duly authorized veterinary surgeon; and all such animals arriving in this State shall be examined immediately upon their arrival by the State Veterinarian, and if in his opinion there is any danger of contagion or infection they shall be placed in close quarantine until such danger of contagion and infection is passed, when they shall be released by order of the Commissioners: *Provided*, That sheep shall be exempt from the operation from [of] this act.

SEC. 19. For the purpose of this act, each member of the commission is hereby authorized and empowered to administer oaths and affirmations.

SEC. 20. This commission is hereby authorized and required to cooperate with any board or commission acting under any present or future act of Congress for the suppression and prevention of contagious or infectious diseases among domestic animals, and the same right of entry, inspection, and condemnation of diseased animals upon private premises is granted to the United States Board of Commissioners as is granted to the commission under this act.

SEC. 21. The commission shall make biennially a detailed report of its doings to the Legislature at its regular business session.

SEC. 22. This act shall take effect immediately upon its passage by the Senate and House and has been approved by the Governor.

PENNSYLVANIA.

The laws and rules and regulations of Pennsylvania relative to bovine tuberculosis are best presented in the language of Dr. Leonard Pearson, State Veterinarian, and Mr. M. P. Ravenel, in their report to the State Department of Agriculture, and published in part II of the Report of that Department for 1899. Pages 464 to 490, inclusive, of that report are copied below:

The need of controlling this disease [tuberculosis] has been evident for a long time, and in view of this need the law authorizing the Secretary of the State Board of Agriculture to take steps to eradicate contagious pleuropneumonia of cattle was so drawn as to confer authority upon the same officer to deal, within certain limits, with other diseases, including tuberculosis. This law was passed in the year 1889, and was in force until the law that follows was enacted by the Legislature of 1895 and approved by the Governor on May 21 of that year:

AN ACT To establish the State Live Stock Sanitary Board of Pennsylvania, and to provide for the control and suppression of dangerous, contagious, or infectious diseases of domestic animals. (Approved May 21, 1895.)

SECTION 1. *Be it enacted, etc.*, That a board is hereby established to be known as "The State Live Stock Sanitary Board." This board shall consist of the Governor of the Commonwealth, the Secretary of Agriculture, the State Dairy and Food Commissioner, and the State Veterinarian, who shall be a competent and qualified person, as provided in the act entitled "An act to create a Department of Agriculture and define its duties."

SECTION 2. That it shall be the duty of the State Live Stock Sanitary Board to protect the health of the domestic animals of the State, to determine and employ the most efficient and practical means for the prevention, suppression, control, or eradication of dangerous, contagious, or infectious diseases among the domestic animals, and for these purposes it is hereby authorized and empowered to establish, maintain, enforce, and regulate such quarantine and other measures relating to the movements and care of animals and their products, the disinfection of suspected localities and articles, and the destruction of animals, as it may deem necessary, and to adopt from time to time all such regulations as may be necessary and proper for carrying out the purposes of this act: *Provided, however*, In the case of any slowly contagious diseases, only suspected or diseased animals shall be quarantined.

SECTION 3. That when it shall be deemed necessary to condemn and kill any animal or animals to prevent the further spread of disease, and an agreement can not be made with the owners for the value thereof, three appraisers shall be appointed, one by the owner, one by the commission or its authorized agent, and the third by the two so appointed, who shall, under oath or affirmation, appraise the animal or animals, taking into consideration their actual value and condition at the time of appraisement, and such appraised price shall be paid in the same manner as other expenses under this act are provided for: *Provided*, That under such appraisement not more than $25 shall be paid for any infected animal of grade or common stock, and not more than $50 for any infected animal of registered stock, nor more than $40 for any horse or mule of common or grade stock, and not to exceed 50 per cent of the appraised value of any standard-bred, registered or imported horses.

SECTION 4. That the board or any member thereof, or any of their duly authorized agents, shall at all times have the right to enter any premises, farms, fields, pens, abattoirs, slaughterhouses, buildings, cars, or vessels where any domestic animal is at the time quartered, or wherever the carcass of one may be, for the purpose of examining it in any way that may be deemed necessary to determine whether they are or were the subjects of any contagious or infectious diseases.

SECTION 5. That any person or persons wilfully violating any of the provisions of this act or any regulation of the State Live Stock Sanitary Board, or wilfully interfering with officers appointed under this act, shall be deemed guilty of misdemeanor, and shall, upon conviction, be punished by a fine of not exceeding $100 or by imprisonment not exceeding one month, or both, at the discretion of the court.

SECTION 6. That the State Live Stock Sanitary Board is hereby empowered to appoint and employ such assistants and agents and to purchase such supplies and materials as may be necessary in carrying out the provisions of this act, and the board and the members thereof are hereby empowered to administer oaths or affirmations to the appraisers appointed under this act, that they may order and conduct such examination into the condition of the live stock of the State in relation to contagious diseases, including the milk supplies of cities, towns, boroughs, and villages, as may seem necessary, and to take proper measures to protect such milk supplies from contamination.

SECTION 7. That all necessary expenses under the provisions of this act shall, after approval in writing by the Governor and the Secretary of Agriculture, be paid by the State Treasurer upon the warrant of the Auditor-General in the manner now provided by law.

SECTION 8. That this act shall take effect June 1, 1895, and all acts or parts of acts inconsistent herewith are hereby repealed.

It will be seen that under this law the State Live Stock Sanitary Board is established and is required and authorized to take such measures as may be necessary to suppress or eradicate dangerous, contagious, or infectious diseases. It is well that the precise methods to be followed in dealing with tuberculosis are not inflexibly established by enactment of the Legislature, because as knowledge of this subject is acquired and as experience accumulates methods must change. Hence if the State is to have the advantage at all times of the best methods, it is necessary that the executive body should be able to change its plans and rules as improved methods are developed.

The membership of the Pennsylvania State Live Stock Sanitary Board was not completed until January, 1896. Hence its work dates only from that time and the time the law was approved by the Governor.

When it became necessary to formulate a plan for dealing with tuberculosis of cattle, considerable difficulty was encountered and many somewhat conflicting conditions and circumstances had to be taken into consideration. While a larger number of herd owners had at that time succeeded in eradicating tuberculosis from their heards by the voluntary enforcement of well-advised measures, the public work that had been carried out in relation to tuberculosis was by no means promising or satisfactory. In some States the matter had been taken hold of in such an abrupt and radical way that the property rights of herd owners had been interfered with, and much opposition had arisen to all measures directed against tuberculosis. In other States the authorities seemed to be feeling their way; they would isolate or kill a few tubercular cattle here and there apparently without definite plan or object. Such work had some educational value, because attention having once been drawn to tuberculosis and interest aroused in the subject, it was easier to take more effective measures later on.

It was in the beginning realized by the State Live Stock Sanitary Board that tuberculosis was exceedingly prevalent in some parts of the State; that in some counties in which the dairy industry had reached its highest development a considerable proportion of the herds were infected. It was realized, also, that information in regard to tuberculosis had not been available to herd owners for more than a short time, and that many of the statements in regard to the disease that had been made were from a prejudiced standpoint and were misleading. Moreover, it was believed that there was no justification for the expenditure of State funds in the work of suppressing tuberculosis, excepting under some method that promised to give results that would be reasonably permanent.

An arrangement that was desired by a number of herd owners was that the Live Stock Sanitary Board should authorize payment for cattle in the advance stages of tuberculosis, and pay no attention to the other members of the herd or the sanitary conditions under which they were kept. A large number of letters was received in which such assistance was asked. If these requests had been acceded to, a number of animals badly afflicted with tuberculosis would have been destroyed and their owners would have received indemnity for their losses. Nothing would have been done, however, in the way of checking the progress of disease in the herd. The other members of the herd that had been exposed to advanced cases of tuberculosis, and some of which were probably infected, and the bad sanitary conditions, would not have received attention. In the course of a few weeks or months another request would have been received from the same herd owner, asking that another cow should be taken over by the State and paid for. A little later another similar request would be received from the same source, and so on indefinitely. To have adopted this plan would have meant the transformation of a work that was intended to have permanent sanitary value into a free live-stock insurance operation. The individual herd owners would be helped, because the loss occasioned by tuberculosis would have been taken, in part, at least, from their shoulders and placed upon the public treasury. The public, however, would derive little or no benefit from such a plan.

Another plan that suggested itself was to endeavor to examine all of the cattle in the State in the attempt to discover and remove all tubercular animals. This plan, however, was not considered seriously for several reasons, and particularly on account of the enormous expense that would have been necessary if it had been put into operation. When it is remembered that this method was tried in Massachusetts, a State having about one-fifth the area and about one-fifth as many cattle as Pennsylvania, and that expenditures under it amounted from $200,000 to $250,000 per year, and that even with this enormous expenditure only a small part of that State was covered in this systematic way, the difficulties will at once be apparent.

Since it was not possible to systematically examine all of the cattle in the State, why not examine all of the cattle in the districts in which tuberculosis is known to prevail most extensively? If this were done it was thought that the effect would be to cause dissatisfaction, first, among the owners of healthy herds in such districts who did not need or care to have their cattle examined, and, second, among the owners of tubercular herds in other districts who could not have their cattle examined because the resources of the board were being consumed in the examination of the herds in certain restricted localities.

A number of farmers in different parts of Pennsylvania had taken up the matter of tuberculosis and had themselves done what they could to eradicate it from their herds before the State Live Stock Sanitary Board was established, and it was apparent that there were many herd owners who desired to place their herds on a healthy basis if they were given some encouragement or assistance from the State. Experience everywhere had shown that it was very difficult for a State to check the progress of this disease and to obtain permanent results without the earnest cooperation of the herd owners. So many false and misleading statements in regard to tuberculosis had been published that there was in some quarters a widespread apprehension in regard to the true nature and import of this disease. It seemed evident that with a knowledge of the facts on this question many more farmers desire to eradicate this scourge from their herds.

The importance of at once disposing of advanced and udder cases was not lost sight of, but it was deemed important that this should be done in some way that should not discourage the complete eradication of tuberculosis in the herds of which such animals were members. In formulating a plan of operation, an attempt was made to develop one with which the cattle owners would be in thorough accord.

With the above facts and the knowledge of the above conditions in mind, the plan of operation that was adopted by the Live Stock Sanitary Board in 1896 and that has since been developed on that foundation consists in the following: Circulars are distributed in regard to tuberculosis, the nature, character, and importance of the disease; its method of propagation; its results and the methods that may be adopted to combat it. A good deal of the information contained in these circulars has been made use of by various agricultural papers and has thus been given increased publicity. At this time there is a pretty general realization in all parts of Pennsylvania of the leading facts in this matter.

Herd owners who have wished to suppress tuberculosis in their herds have been assisted by the State Live Stock Sanitary Board under a definite plan of cooperation. According to this plan the herd owner is required to fill out and sign an application form and agreement as below:

FORM A.

Request for inspection and tuberculin test of herd at the expense of the State Live Stock Sanitary Board.

——— ———, 190—.

To the State Live Stock Sanitary Board, Harrisburg, Pennsylvania.

GENTLEMEN: I have reasons to believe that some of my cattle are afflicted with tuberculosis, and I wish to have my entire herd inspected and tested with tuberculin, if such test is deemed necessary by your representative, and the diseased animals disposed of according to rules and regulations of the State Live Stock Sanitary Board.

I understand that this inspection and test are to be made at the expense of the Commonwealth, and, in consideration thereof, I agree to thereafter observe the precautions and measures and to employ the means recommended by your board to prevent the reintroduction and redevelopment of tuberculosis in my herd.

I certify that, to the best of my knowledge and belief, none of the dairy cows or cattle for breeding purposes in my herd have been brought from another State into Pennsylvania since January 1, 1898, without having been subjected to inspection and tuberculin test, as required by law.

Yours, respectfully,

——— ———,
(Address) ———, ——— *County, Pa.*

My herd includes the following animals: Cows, ——; heifers over one year old, ——; bulls over one year old, ——; steers, ——; calves under one year old, ——; total, ——. The milk from this herd is used by ——— for ———.

The cattle are ——— (state breed and whether registered).

The following are my reasons for believing that some of my cattle are afflicted with tuberculosis: ———.

The herd owner is at the same time informed that the inspection will be made only in accordance with the following conditions:

Upon application from owners of tubercular cattle the State Live Stock Sanitary Board will furnish tuberculin and inspections free on condition that the cattle owner will agree to—

1. Assist in the examination.
2. Separate the cattle found to be tubercular from those that are healthy and have them cared for separately until disposed of, as directed by the State Live Stock Sanitary Board.
3. Disinfect the stables and correct faulty sanitary conditions, as directed by the State Live Stock Sanitary Board.
4. Discontinue the use of milk and cream from infected cows, except when boiled or heated to 185° F. and kept at this temperature for five minutes.

Upon application from owners of dairy herds not known to be infected the State Live Stock Sanitary Board will conduct or direct inspections of cattle and cattle stables and yards, and will furnish certificates showing the health of the animals and the sanitary condition of their surroundings: *Provided*, That the applicant will agree to bear the necessary expense of such inspections.

Since it is manifestly impossible for the State Live Stock Sanitary Board to investigate all rumors or unsubstantiated reports of contagious diseases among domestic animals, the State Veterinarian may, if in his opinion there exists a reasonable doubt as to the dangerous, contagious, or infectious character of a reported disease, request the owner or person in charge of the stock, at his own expense, to have an examination made by a competent veterinarian, and furnish a report from such veterinarian to the Secretary of the Board. In case this request is not complied with the Board may decline to consider the case.

After the inspection thus asked for has been made by an inspector selected and paid by the State Live Stock Sanitary Board the cattle that show physical evidence of tuberculosis may be at once appraised and destroyed, the appraisement being made, as required by law, with due regard to the actual value and condition of the animal at time of appraisement. The limit of appraisement for unregistered cattle is $25 and for registered cattle $50. Anything that may be obtained from sale of the hide or of the carcass to a fertilizer manufacturer the owner receives in addition to the appraisement. The members of the herd that do not show physical signs of tuberculosis, but react to the tuberculin test, may be disposed of in the same way as the animals that show physical evidence of tuberculosis, or, if the owner prefers to keep them alive under prescribed conditions, he is permitted to do so. If the reacting animals are kept, they must be maintained entirely apart from nonreacting cattle. They must be stabled and pastured separately. The owner is not permitted to sell them, nor is he permitted to dispose of or use their milk without previous sterilization by boiling or by heating to 185° F. for ten minutes. The progeny of such reacting cows must be removed immediately after birth and reared on the milk of healthy cows or on heated milk from reacting cows. In other words, if the owner prefers to keep his reacting animals alive, he is permitted to do so under regulations similar to those that Bang formulated and that have proven so satisfactory and safe in Denmark.

It should interest those who have so strongly advocated the adoption in this country of the Danish method of suppression of tuberculosis to know that this method in its entirety has been offered to the farmers of Pennsylvania for four years and that very few have cared to avail themselves of it. This is not because they do not wish to suppress tuberculosis, because a great many farmers have had their herds examined and have willingly sacrificed their reacting cows and have accepted the indemnity offered by the State, which is considerably less than real value of the animals; and this method has been accepted in preference to the Danish method. The reason for this selection is not hard to find.

When a Pennsylvania farmer discovers that he has tuberculosis in his herd and resolves to get rid of it he wishes the whole thing accomplished and off his mind as soon as possible. He does not care to maintain two herds, one healthy and one reacting, and provide separate stable accommodations and separate pastures for them. He does not care to do this because the proper enforcement of this method means a considerable amount of extra work and because there is no market, or a very restricted market, for milk that has been heated. If butter is made on the farm it is possible to adopt this system with a minimum of trouble and loss; but if the milk is sent to a creamery, the creamery will not care to heat it as is necessary and more than likely would refuse to take it. Hence the herd owner almost invariably concludes that it is best to accept the indemnity offered by the State and eradicate the disease at once.

Perhaps, in view of the extent to which tuberculosis of cattle in Pennsylvania prevails, the plan that has been chosen by the farmers of this State is, after all, the best and most economical. If, however, tuberculosis were from ten to fifteen times as prevalent as it is—that is to say, if it were as prevalent in Pennsylvania as it is in Denmark and in parts of Germany—the plan that is followed in Pennsylvania would not be feasible, because to do the amount of work that is now being done would require from ten to fifteen times as much money or, with funds now available, the work would have to be restricted to from one-fifteenth to one-tenth of its present proportions.

So many applications for herd tests are made that it is not possible to respond to all of them. For this reason each herd owner is required to submit his reasons for believing that his herd is infected with tuberculosis, and an attempt is constantly made to confine the inspections to the herds that are most likely to harbor diseased animals. Where an inspection of a herd is desired merely for the purpose of obtaining information as to its condition and, in the event that it proves to be free from tuberculosis, a certificate of health, the owner is required to pay for the examination. Tuberculin is furnished free of charge by the State Live Stock Sanitary Board for this use. When such a certificate is desired the following form of application is used:

FORM B.

Request for inspection at expense of owner.

—— ——, 190—.

To the Live Stock Sanitary Board, Harrisburg, Pennsylvania.

GENTLEMEN: I wish to obtain from you a certificate showing the health of my herd and the sanitary condition of the surroundings in accordance with your rule providing that such certificate can be granted in cases in which herds are examined under your supervision at the expense of the owners of the cattle. I desire this inspection to include a test with tuberculin.

My herd includes the following animals: Cows, ——; heifers over one year old, ——; bulls over one year old, ——; steers, ——; calves under one year old, ——; total ——. It is located on the premises of —— —— in ——, —— County, Pa.

The milk from this herd is used by —— for ——.

I hereby agree to pay to the representative of the Board who makes this inspection his reasonable and just charge for such service.

Yours, respectfully,

——— ———,

(Address) ———, ——— *County.*

The form of certificate now in use is as follows:

Certificate of inspection and tuberculin test.

This is to certify, that the herd of Mr. ——— ———, of ——— ——— post-office, ——— County, Pa., consisting of the following animals: ——— was subjected to a physical examination and to the tuberculin test on the ——— day of ———, 190—, by ——— of ———, acting for the State Live Stock Sanitary Board, and the said animals were found to be free from all evidence of tuberculosis or other transmissible disease, with ——— exception: ———; and further, that the stables and yards in which these animals are kept were in good sanitary condition.

——— ———, *State Veterinarian.*

If it should be found in an inspection at the expense of the owner that the herd contains cattle afflicted with tuberculosis, these may be disposed of just as they are when the inspection is made at the expense of the State, if the owner will sign the form of agreement printed below:

FORM C.

———, ———, *190—.*

To the State Live Stock Sanitary Board, Harrisburg, Pennsylvania.

GENTLEMEN: I have had my entire herd inspected and tested with tuberculin and have reasons to believe that some of my cattle are affected with tuberculosis.

I have had this inspection and test made at my own expense and now wish to dispose of the diseased animals in accordance with the rules and regulations of the State Live Stock Sanitary Board and to avail myself of the assistance afforded by the Commonwealth in such cases. If such assistance is furnished, I agree to thereafter observe the precautions and measures and to employ the means recommended by your board to prevent the reintroduction and redevelopment of tuberculosis in my herd.

My herd includes the following animals: Cows ——, heifers over one year old ——, bulls over one year old ——, steers ——, calves under one year old ——; total ——. The milk from this herd is use by ——— ——— for ———.

The cattle are ———. (State breed and whether registered.)

The inspection and test were made by ——— ——— of ——— on ———, 190-.

I certify that, to the best of my knowledge and belief, none of the dairy cows or cattle for breeding purposes in my herd have been brought from another State into Pennsylvania since January 1, 1898, without having been subjected to inspection and tuberculin test as required by law.

Yours, respectfully,

——— ———,

(Address) ———, ——— County, Pa.

All of these inspections that have been referred to thus far are voluntary on the part of the owner and are not made excepting upon his application and evidence that there is good reason to believe that the herd is actually infected. The question now arises as to whether this method is sufficiently far reaching; that is, whether it insures the inspection of all herds that should be inspected and the removal of all tubercular animals that should be removed. While this is an important question, its value is somewhat lessened by the fact that the State Live Stock Sanitary Board is doing all of the work it can do with the funds at its disposal, so if more herds were reported for inspection this would mean that a corresponding number of other herds reported for inspection would have to be kept waiting. As a matter of fact, the method that is now in operation is gradually but surely reaching and clearing up the worst infected and the most dangerous herds in the State. Usually the owners of such herds are led to appeal to the State by two motives: First, through fear that tuberculosis may be distributed by the products of their herd, and, second, through a desire to escape the unceasing losses caused by the ravages of tuberculosis among their cattle. If these motives are not sufficient to cause an inspection to be applied for, the herd owner is, if his herd is badly infected, usually impelled to seek the aid of the State Live Stock Sanitary Board when he finds that his animals and his dairy products do not find a ready market and that his neighbors frown upon the maintenance of a notoriously tubercular herd in their community.

After the tubercular animals are removed from the herd, it is in all cases required that the premises shall be well disinfected and in accordance with the following rules for disinfection given in Circular No. 2:

DIRECTIONS FOR DISINFECTING STABLES.

Disinfection as it is usually practiced is misleading and worthless. Disinfection is carried out for the purpose of destroying disease-producing germs, and to be effectual all of these germs must be destroyed. Disease germs are minute living bodies; they float in the atmosphere, are carried by water, food, manure, and, in fact, by anything that has been in the vicinity of an animal suffering with a contagious disease.

The germs of some diseases are very delicate and, after leaving the body of an afflicted animal, die within a short time, and in these cases it is not possible for them to spread very far. In other diseases, however, the germs are exceedingly resistant organisms; they can endure extreme heat and extreme cold; they can live outside of the body for days or week, in some cases for months, and even years.

Most of the disease-producing germs do not multiply outside of the body, but a few of them do, and these can be propagated, under favorable conditions, almost indefinitely.

Since these organisms are so minute and can be carried about in the air as dust, they may lodge in the smallest and most remote portions of the stable and in places most difficult of access. Hence, it is very evident that the usual so-called disinfection, which consists in scattering a strong-smelling substance about, can not be efficient. When the disinfectant (an agent used to destroy disease-producing germs) is scattered carelessly about on the floor of a stable it may not cover more than but one-hundredth of the area upon which the germs are lodged; so that, in this case, but 1 per cent of the stable is disinfected. Disinfectants can not destroy germs that they do not come in contact with; and if but part of the germs are destroyed and the others are allowed to remain the results of the whole operation will be disappointing.

Rules for disinfection follow:

1. Permit the entrance of a plentiful amount of light. Disease-producing germs are destroyed by the direct rays of the sun within a short time. They are destroyed by less intense light more slowly, but will live for long periods in dark places. So that one of the cheapest and best disinfectants is sunlight. There are numerous other advantages in having plenty of light in a cow stable that is not necessary to mention here.

2. Cleanse the stable thoroughly. It has been stated already that disinfectants do not destroy germs that they do not come in contact with, and in order to permit the disinfectants used subsequently to come in contact with all the surfaces that may harbor disease-producing germs it is necessary that these surfaces should be uncovered by the removal of dirt that has accumulated over them.

The cleansing of the stable includes (*a*) removal of manure; (*b*) removal of piles of fodder; (*c*) sweeping the ceiling, walls, and floor; (*d*) the removal of rotten woodwork and loose boards, especially of the floor; (*e*) the removal of dried accumulations about mangers, floors, and drains; (*f*) scrubbing the mangers, feed boxes, stall, and partitions, which should be done with hot water and strong soap, lye, or washing soda.

3. Apply chemical disinfectants. After the stable has been treated as above recommended, it is ready for the application of chemical disinfectants. These are substances that poison disease-producing germs. Some of them are far more efficient than others. One of the most active is bichloride of mercury or corrosive sublimate. This substance is poisonous and must be used with great care. Before it is applied it must be dissolved in water in the proportion of one part to one thousand. One ounce of corrosive sublimate dissolved in eight gallons of water makes a solution of the right strength. In making the solution the corrosive sublimate should be dissolved in one gallon of hot water and then mixed with enough cold water to make eight gallons. This liquid can be applied with a brush, sprinkling pot, or spray pump, and must be carried into every crevice or recess into which dust can enter.

Another disinfectant that is good, but less efficient than the above, is chloride of lime, of which one pound should be dissolved in three gallons of water and applied in the same way. Carbolic acid mixed with water in the proportion of one to twenty parts, or pint to two and one-half gallons of water is also efficient, and should be applied in the same manner as bichloride of mercury solution.

Sulphate of iron, commonly known as copperas, makes an excellent and cheap disinfectant for floors, gutters, drains, etc. It should be applied as a saturated solution. As much sulphate of iron should be dissolved in the water as possible, and this solution should be applied very freely with a sprinkling can to the places that are to be disinfected with it. It is not poisonous, and when applied in large quantities is a good disinfectant. It is also of great utility in disinfecting mangers, feed boxes, etc., on account of its nonpoisonous properties.

4. Whitewash. Although whitewash is not an active disinfectant, in the usual meaning of this term, it is an excellent purifier, and should in all cases be used in stables after they have been thoroughly cleaned and disinfected with other agents. If chloride of lime is added to whitewash in the proportion of one pound to three gallons of water, the value of this application is greatly increased. It is advisable to whitewash cow stables frequently, at least once in six months, and better once every three months. Hot whitewash for this purpose is better than cold.

5. Allow the stable to remain perfectly empty, if possible, for several weeks. Of course, this can not be done in all cases, but where it is possible it is well to allow a greater opportunity for the death of disease-producing germs that may have escaped the disinfectant applications.

There are some badly constructed stables that it is almost impossible to disinfect, because cisterns, wells, cesspools, foot-cellars, spaces in the walls, floors, etc., can not be reached properly. In these cases it is sometimes necessary to vacate the premises for a long period, or, if they have but little value, burn them down. Where the floor of the stable is made of earth it is well to dig it out to a depth of about six inches and refill the excavation with fresh earth.

The litter, old woodwork, etc., removed from infected stables should be burned.

LEONARD PEARSON, *State Veterinarian*.

After a herd has been inspected, it is reinspected within a year if it is found to be badly infected upon the first inspection, and, if necessary, a third, or even fourth inspection will be made. The precautions and measures that the owner agrees to observe, after the inspection has been made at the expense of the State, are the following:

CIRCULAR No. 3.

Precautions and measures to be observed to prevent the reintroduction and redevelopment of tuberculosis in inspected herds.

After the herd has been inspected and tested with tuberculin and the tubercular animals disposed of in accordance with the rules and regulations of the State Live Stock Sanitary Board, the premises occupied by the diseased animals must be very thoroughly disinfected in accordance with the directions in Circular No. 2 of this board. It is assumed that cattle passed by the inspector—the cattle that show no physical signs of tuberculosis and do not respond to the tuberculin test—are free from tuberculosis, and if they are protected from all sources of infection they will remain free from this disease.

The three principal ways in which tuberculosis is carried into the body are:

A. With the air.
B. With the food or water.
C. Through the skin or mucous membrane.

All of these sources of infection should be guarded against most carefully, and in order that they may be avoided the following measures are recommended:

1. The cattle should be watched very closely and upon the first indication of tuberculosis the suspected animal should be removed from the herd and placed where its products and the things that have been in its immediate vicinity can not come in contact with healthy animals, and the place occupied by it in the stable should be disinfected.

2. It is well to subject the entire herd to the tuberculin test six to twelve months after the first inspection, and if it should be found that an infected animal or a source of infection had escaped the first infection and disinfection, the condition could in this way be recognized before extensive injury had resulted.

3. Additions to the herd should be purchased subject to one of the following

conditions: (*a*) A report from a competent veterinarian showing that the animal has been tested with tuberculin and found to be free from tuberculosis a short time before the sale, or (*b*) full information covering the herd from which the animal is procured. In the latter case, it should be known that the herd has never been infected with tuberculosis, or that its members have been inspected with tuberculin and found free from disease.

Freedom from tuberculosis is indicated, but not proven, by a general thrifty appearance, good flesh, bright coat, and bright eye, temperament, and absence of cough. If animal has been well fed, but is found in an unthrifty condition, it is suspicions. Cattle from unknown sources should not be purchased without a guarantee that they are healthy, and since it is absolutely impossible for anyone, however experienced or wise, to discover a large percentage of cases of tuberculosis without the tuberculin test, notwithstanding the fact that many of them may be in condition which renders them dangerous to their associates, the guarantee of health should be based on accurate and reliable information, as indicated above.

4. The cow stable should be well lighted. Many stables are deficient in this respect, and, as it is a serious matter, it should be remedied. The value of light lies in the fact that it restricts activity of and destroys disease-producing germs, and it exposes dirt. Moreover, cows kept in a dark place usually become unthrifty and do not have such a high degree of resistance to disease as is possessed by those kept in the light. Dark stables are apt to be damp also. Thus it is seen that the value of light is manifold and windows should be abundant.

5. The stables should be kept clean. Manure, litter, and dirt must not be allowed to accumulate, because these collections furnish places for the preservation and growth of disease germs and also serve to contaminate the atmosphere by the odors and gases which they emit.

The stable should be kept dry. The fluid evacuations should be absorbed with dry litter or should be drained into a receptacle outside of the stable. If the walls are damp, measures should be taken to correct the fault, because a damp wall leads to an unwholesome degree of moisture of the atmosphere, furnishes a favorable surface for the preservation and growth of germs, leads to contamination of the air with their products, and favors chilling. Sometimes it is necessary to dig the earth away from the wall outside of the stable, and it may be necessary to build a retaining wall a short distance from the stable wall in order to keep the earth back and allow a space for the free circulation of air. Damp walls are sometimes caused by leaky roofs or too short overhangs.

7. The air in the stable must be kept pure. The observance of all the measures recommended above will greatly influence this factor, but as air is constantly being used by the animals in the stable it is necessary to provide for ample ventilation for a renewal of the supply. The arrangements for ventilating should be so planned that air may be introduced in sufficient quantity, but not as a draft that will come in contact with any animals. This subject is discussed more fully in the State Veterinarian for 1896.

8. Cleanse the stable with especial care and whitewash it at least once in six months.

9. Do not feed skim milk from creameries to calves without previous sterilization by boiling. This is essential, for many cases have been recorded, and several have come to the personal experience of the State Veterinarian, in which a tuberculous herd supplying milk to a creamery, with a large number of patrons who used the skim milk as food for calves and pigs, caused the development of tuberculosis on a number of farms in the vicinity.

10. Do not purchase or use fodder that has been stored above a stable occupied by tubercular cattle. The germs of tuberculosis float in the air as dust and become mixed with fodder stored within their reach, rendering it dangerous to feed it to cattle.

11. Healthy cattle should not be allowed to drink from a watering trough habitually used by tubercular cattle, nor should they be allowed to associate with them in the pasture or elsewhere.

12. The offspring of tuberculous parents should not be allowed to mix with the herd until they have been tested with tuberculin and free from disease.

13. The bull should be perfectly healthy and should not be patronized if he has been in a tuberculous herd, unless his freedom from tuberculosis has been proven by the application of the tuberculin test.

14. It is not well to allow a consumptive to work about cattle or in the dairy, in any capacity.

LEONARD PEARSON, *State Veterinarian.*

All animals afflicted with advanced or udder tuberculosis are required by the regulations of the State Live Stock Sanitary Board to be placed in quarantine, and the milk from such animals is not permitted to be sold or used. A clause in the Pure Food Law also prohibits the sale of milk from diseased cows and provides a penalty for so doing. After advanced and udder cases of tuberculosis are placed in quarantine, they may be appraised and destroyed at the expense of the State if the owner of the herd has signed an application for the inspection of his entire herd. The appraisal and destruction of these cows may be carried out without waiting for the inspection of the remaining portion of the herd, because such animals are prolific distributers of disease germs and they should be gotten rid of as soon as possible and the premises occupied by them disinfected. If the owner of such animals has not and will not apply for an inspection of his entire herd, the animals of the class described are held in strict quarantine until they are disposed of at the loss of the owner, or until the inspection of the herd is applied for and the accompanying agreement is signed. In appraising such animals their actual value and condition at the time of appraisement must be taken into consideration, and it is usually deemed that they have lost all value excepting for fertilizing purposes, so that the amount of appraisement is nominal.

The only compulsory use of tuberculin in Pennsylvania is in the inspection of dairy cows and cattle for breeding purposes coming from other States. Inspection of these animals is required by the act of May 25, 1897. This act and rules for enforcing it follow:

LAW.

AN ACT to protect the health of the animals of the Commonwealth of Pennsylvania. (Approved May 26, 1897.)

SECTION 1. *Be it enacted, etc.*, That the importance of dairy cows and neat cattle for breeding purposes into the Commonwealth of Pennsylvania is hereby prohibited excepting when such cows and neat cattle are accompanied by a certificate from an inspector whose competency and reliability are certified to by the authorities charged with the control of the disease of domestic animals in the State from whence the cattle came, certifying that they have been examined and subjected to the tuberculin test and are free from disease.

SEC. 2. That in lieu of an inspection certificate as above required, the cattle may be detained at suitable stock yards nearest to the State line on the railroad over which they are shipped, and there examined at the expense of the owner, or cattle as above specified from points outside of the State may, under such restrictions as may be provided by the State Live Stock Sanitary Board, be shipped in quarantine to their destination in Pennsylvania, there to remain in quarantine until properly examined at the expense of the owner, and released by the State Live Stock Sanitary Board.

SEC. 3. The State Live Stock Sanitary Board is hereby authorized and empowered to prohibit the importation of domestic animals into the Commonwealth of Pennsylvania, whenever in their judgment such measures may be necessary for the proper protection of the health of the domestic animals of the Commonwealth, and to make and enforce rules and regulations governing such traffic as may from time to time be required.

SEC. 4. That any person, firm, or corporate body violating the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction shall, in the proper court of the county in which such cattle are sold, offered for sale, delivered to a purchaser, or in which such cattle may be detained in transit, for each offense forfeit and pay a fine of not less than $50 or more than $100, or be punished by imprisonment for not less than ten days, and not exceeding thirty days, either or both, at the discretion of the court. Such person, firm, or corporate body shall be liable for full amount of damages that may result from the violation of this act.

SEC. 5. The State Live Stock Sanitary Board is hereby charged with enforcement of this act, and is authorized to see that its provisions are obeyed, and to make, from time to time, such rules and regulations as may be necessary and proper for its enforcement.

SEC. 6. That this act shall go into effect January 1, 1898.

RULES FOR THE ENFORCEMENT OF THE ACT OF MAY 26, 1897.

Dairy cows and neat cattle for breeding purposes may be brought into Pennsylvania from other States only in accordance with one of the three following provisions:

1. The cattle may be examined and tested with tuberculin in the State from whence they come by an inspector whose competency and reliability are certified to by the authorities charged with the control of the disease of animals in that State. Special blanks for reporting upon such examinations will be furnished by the State Live Stock Sanitary Board upon application. Cattle thus examined, found to be free from disease and brought into Pennsylvania, shall remain in the possession of the person or persons who own them when brought into Pennsylvania until the inspection reports have been approved by a member of the State Live Stock Sanitary Board or by an agent authorized to approve such reports. After such approval the cattle can be disposed of without restriction.

2. Dairy cows and neat cattle for breeding purposes may, if shippers so elect, be examined and tested with tuberculin at suitable stock yards nearest to the State line on the railroad over which they are shipped. Such examinations are to be made by inspectors approved by this board and at the expense of the owner of the cattle.

Cattle so inspected shall be marked with a suitable metal tag or shall be accurately described so that they can be reliably identified, and a report on the examination and test, with directions for identification, shall be submitted without delay to this board.

3. Dairy cows and neat cattle for breeding purposes may be brought into Pennsylvania without previous examination only under the following conditions:

A. Notification to the State Live Stock Sanitary Board that it is proposed to bring certain dairy cows or neat cattle for breeding purposes into this State. Such notice must be accompanied by the number and a full and accurate description of the cattle, the names and addresses of the owner and consignee, the date upon which they are to be brought into the State, the route over which they are to be driven or shipped, and the destination.

A blank form to use in rendering this report will be sent upon application to the State Live Stock Sanitary Board.

B. Such cattle shall remain in strict quarantine during transit and after they have arrived at their destination, until they have been examined and tested with tuberculin by an inspector approved by this board. Under this quarantine it is required that the cattle shall be kept apart from other cattle; that they shall remain in the possession of the person or persons who bring them into this State, and that their milk shall not be sold or used without previous sterilization by boiling.

Dairy cows or neat cattle for breeding purposes brought into Pennsylvania under this provision that are found upon examination or test to be tuberculous shall be strictly isolated and quarantined; their milk can not be used for any purpose whatever without previous sterilization by boiling, and they shall not be moved to other premises excepting for slaughter. No compensation shall be allowed for such cattle.

Approved by the State Live Stock Sanitary Board at Harrisburg, Pa., November 5, 1897.

It will be seen that these tests can be made outside of the State by an inspector approved as regards competency and reliability by the authorities charged with the control of the disease of animals in that State; or, if the owner prefers, the cattle may be detained at suitable stock yards in transit and tested there. Under this regulation about 2,500 cattle are annually tested at the stock yards at Pittsburg. Or, third, the cattle may be shipped on permit to their destination in Pennsylvania, and there examined with tuberculin by an inspector approved by the Live Stock Sanitary Board of this State, and paid by the owner of the cattle.

The form of permit used is the following:

STATE LIVE STOCK SANITARY BOARD.

Record Book Number, ——.

HARRISBURG, PA., ——, 190—.

This will permit Mr. —— —— to ship —— cattle (dairy cows or cattle for breeding purposes) from —— to ——, Pennsylvania, without examination until arrival at destination. These cattle will remain in quarantine until arrival at destination and test with tuberculin by ——— ———, who is authorized to release them if found free from disease. This permit will expire ———, 190—, and is not valid until a description of each animal in the lot is written below.

This permit is to be taken up by said inspector and returned to the Secretary of the State Live Stock Sanitary Board.

——— ———,
State Veterinarian.

The following is to be filled in and signed by the shipper:

Animal (cow, bull, heifer, calf).	Breed.	Age (approximate).	Color and markings.	Ear tag number (if any).

(Shipper signs here) ——— ———.
(Address) ———.

Tuberculin for all of these tests is furnished without charge by the board, but the inspectors are, in all cases, compensated by the shipper or owner of the cattle. This law has been in operation but two years, and under it 35,437 cattle have been examined. A considerable proportion of these have been examined before shipment into Pennsylvania. Of those shipped into Pennsylvania and examined at their destination, 238 were condemned. After two years' experience with this law cattle shippers have been able to gain a good deal of information as to where tuberculosis is a prevalent disease, and such localities are now avoided by them. Therefore, the cattle shipped into Pennsylvania at the present time are more carefully selected than ever before, both as to the locality from which they originate and as to their individuality.

The need for this inspection requirement is indicated by the fact that tuberculosis is most prevalent in those parts of Pennsylvania into which the greatest number of cattle are shipped. The fact that large numbers of animals have been brought into these sections means that there has been much opportunity for contamination, and it is evident from the statistics of inspections made in such localities that a large amount of contamination has actually occurred. The cattle in the cattle-producing districts of Pennsylvania, the localities from which cattle are sent out and few are brought in are comparatively free from tuberculosis. By means of this law it is possible for farmers who have eradicated tuberculosis from their herds to restock with animals they know to be in health.

The danger to which purchasers are exposed where they are without the protection afforded by this law is indicated by the fact that cattle dealers in other States have repeatedly endeavored to purchase from farmers in Pennsylvania animals that have been condemned as tubercular. They said that they could readily take them to States without a law requiring the inspection of coming cattle and there dispose of them. The writer has personal knowledge of a number of herds in an adjoining State that have been freed from tuberculosis by selling the tubercular animals. Members of such herds have many times been prevented from coming into Pennsylvania by the application of this inspection law. Indeed, it is a common and well-known practice of certain breeders to sell tubercular animals that they are afraid to keep in their own herds. Complete evidence to support this statement is available. Several large herds have been sold recently because they were so permeated with tuberculosis that they could no longer be maintained profitably.

The danger of infection from such outside sources was first appreciated by the New England States. At this time, however, the appreciation of the danger is general, and the tuberculin test is required to be applied to cattle imported into the United States from Europe and Canada, to cattle imported by Canada from Europe and the United States, and is also required by seventeen separate States of this country.

In Europe almost every country has this requirement except Great Britain, where foreign cattle are absolutely excluded, excepting those that are killed on landing docks within six days after arrival.

The field work of the State Live Stock Sanitary Board is under the supervision of the State Veterinarian, and is carried out by him with the aid of veterinary practitioners of the State, who are employed for special work as their services are required. For herd tests veterinarians are compensated at the rate of $5 per day, and proportionate sums for parts thereof. As this rate of compensation is low, it has in some cases been difficult to secure the services of the best veterinarians. It is, however, a rule to which there are few exceptions that the veterinarians of the State take a patriotic view of the matter, and are willing to give the State the benefit of their best skill. It is thought that there has been advantage in having inspections made by veterinarians residing and practicing in the immediate locality. By engaging the services of such veterinarians in this work they become thoroughly familiar with and are interested in the suppression of tuberculosis in the herds in their community, and if the herd owner has reasons subsequently to fear that something is wrong with his cattle he is able, without going far, to consult an expert who is thoroughly familiar with the conditions surrounding the case. Moreover, after a veterinarian has eradicated tuberculosis from a herd so far as possible, he is likely to be interested in the maintenance of the health of that herd, and will be able to do more for it if near by than would be possible at a greater distance.

Another fact that is believed to have had a favorable influence on the progress of the work directed against tuberculosis in Pennsylvania is the manner in which the postmortem examinations have been made. It has been stated above that nearly all owners of tubercular cattle have desired to accept the indemnity offered by the State and have the cattle destroyed. In some States it has been the practice to ship cattle to be killed to a city abattoir or rendering works, where they might be conveniently examined, and their carcasses used for making fertilizer. The amounts received for carcasses for this purpose are not great and if the animals must be shipped far nearly all of the income is taken up in freight charges. It is possible, however, to effect a small saving where full carloads can be shipped. This system has not been generally followed in Pennsylvania, because it was deemed important to restrict owners of animals in regard to tuberculosis, and to permit them to see postmortem examinations is a most effective way of imparting information in regard to the disease.

The statement has been made so often by persons not familiar with the facts in regard to tuberculosis, but who have not hesitated, nevertheless, to make the most positive statements, that an animal can not be extensively diseased without showing well-marked symptoms. In consequence of this, and as a result also of a most natural belief that an animal that looks well must be well, there were people everywhere who could not be convinced that an apparently sound animal, an animal in good flesh, with a good appetite, and giving a good flow of milk, could be tubercular to a material degree, even though it had responded to tuberculin test and even though other symptoms of tuberculosis could be detected by the discerning veterinarian. Where this view prevails, there is no way to teach the facts that must be impressed, if tuberculosis is to be eradicated by a State, other than to give ocular demonstrations. When a man has seen a herd of tubercular cattle alive and has seen them killed and witnessed the alterations produced by the disease, he is willing to admit that an animal can be tubercular to a dangerous degree without showing symptoms. Of course, this same information can be derived by the examination of animals killed for food. It is not an uncommon thing in large abattoirs to find animals apparently in the pink of condition containing widespread and extensive lesions of tuberculosis. But this source of information is not generally available.

As a striking proof of the value of the information imparted in the manner just indicated, it may be said that the Live Stock Sanitary Board is applied to for the greatest number of inspections in districts in which the greatest number of demonstrations of this kind have been held. As an illustration of this, there is a community in one of the eastern counties of the State in which there were many farmers who were opposed to any inspection of herds for the purpose of repressing tuberculosis. They did not believe that the disease was prevalent enough to be of economic importance, and some of them claimed that it was of little or no importance from the standpoint of public health. No inspections were applied for in this district until, a few months ago, the owner of a herd of twelve cows had lost three of his animals by death from tuberculosis. He thereupon applied for an inspection of the remaining members of his herd, and much to his surprise all of the animals reacted to the test. It was arranged to have them appraised and killed. The matter excited a great deal of interest in the neighborhood, and as many as two hundred farmers came to see the postmortem examinations. They were so impressed with what they saw that a flood of applications for herd tests came to the Live Stock Sanitary Board from that neighborhood, and, as the inspections could not be made as rapidly as was desired, many cattle owners had their cattle tested at their own expense. This illustrates the fact that has been reiterated in this report, that the farmers of Pennsylvania want healthy herds. The farmer who knows that his herd is infected with tuberculosis and who does not apply to the State for assistance in checking the infection is the exception. Therefore what is needed is to bring the facts in regard to tuberculosis to the attention of cattle owners, and no more effective way of doing this has been devised than to make it possible for them to witness postmortem examinations on tubercular cattle.

Sometimes dairymen do not wish to have their tubercular animals utilized in this public way. They desire the slaughter to be conducted privately. Such requests are always observed. Where many animals are to be destroyed and where the facilities are poor, and especially during severe weather, it is most convenient to ship condemned cattle to a fertilizer establishment. The expense of shipment is in this case taken out of the amount paid for the cattle, and the balance is kept by the owner.

Another result of the recognition of the facts in regard to tuberculosis has been the lessening of the tendency that was so extremely prevalent to exaggerate or minimize the facts in regard to the disease. At one time it was very difficult to find articles or to hear discussions on this disease in which the dangers were not grossly exaggerated or the importance underestimated.

During the period of operation of the State Live Stock Sanitary Board 34,000 cattle have been examined and tested with tuberculin at the expense of the State, and of these 4,800 have been condemned, destroyed, and paid for. The payments amount to $119,000. The cost of the inspections has been $20,000, making a total expenditure of $139,000 in four years. An attempt has always been made to select the most extensively diseased herds for inspection. During the first eighteen months of the work, that is up to June 1, 1897, 9,108 cattle were tested, and of these 1,839 were condemned. The percentage of tuberculosis, therefore, was 20.39. From June 1, 1897, to June 1, 1899, 16,687 cattle were examined and 2,116 were condemned, making the percentage of tuberculosis 12.67. The fact should not be lost sight of in this connection that these figures represent the percentage of infection among the most extensively infected herds in Pennsylvania. Since June, 1899, very few herds were examined where there was not strong reason to believe that they were infected, and, indeed, extensively infected, before the inspection was made. At present a good many herds are being examined at the expense of their owners, and the tubercular animals are being taken over by the State. (Under the arrangement afforded by Application Form C.)

At least as many herds have been examined by their owners as have been examined by the State, and only a limited portion of the tubercular cattle found in these herds are appraised and paid for by the State. Some of them are no doubt sold to drovers and disposed of to other farmers, where they may have an opportunity to spread disease, and others are sold to butchers and turned into food for man. Still others are destroyed by their owners and no compensation is asked for. It should not be inferred that in these inspections made by private expense anything like as many tubercular cattle are found as in inspections made by the State, because the inspections made privately frequently—indeed, usually—reveal the entire herd to be free from infection.

The applications for herd tests are from two to four times as numerous as the inspections made by the State. Some applications are not accompanied by evidence that tuberculosis exists in the herds; others are accompanied by insufficient evidence. Applications are sifted very carefully, and as many inspections are made as can be paid for, and it is the constant endeavor to select for inspection herds that are most likely to contain diseased animals.

All of this shows that interest in tuberculosis and the desire to eradicate it from herds are developing at a rapid rate in Pennsylvania. This tendency is seen not only in requests for inspection, but also in improvements in stables, increased care in purchasing additions to herds, and by the increase of breeding as opposed to the purchase of dairy cows.

An exact census of tubercular cattle in Pennsylvania has never been made and can never be made. Therefore it is impossible to say how much tuberculosis there was in the State and to compare that amount with the undetermined amount that exists at this time. All evidence on this point must be somewhat indirect and circumstantial. There is, however, conclusive evidence to the effect that tuberculosis is very much less prevalent among the cattle of Pennsylvania than it was when the work of the State Live Stock Sanitary Board started in 1896. For example, nearly all of the worn-out dairy cows from the herds in the vicinity of Philadelphia are shipped to that city for slaughter. These cattle are inspected more or or less thoroughly by the city meat inspectors. The inspectors visiting or stationed at the Philadelphia slaughterhouses are impressed by the fact that there is very much less tuberculosis among cows than was the case three or four years ago. The practicing veterinarians of the State are in constant contact with herds and are at all times informed as to the general health of the cattle within their fields of practice. The veterinarians testify almost uniformly that tuberculosis is gradually but surely being repressed in the herds with which they come in contact. In the dairy counties in the northeastern part of the State, where there was at one time considerable tuberculosis, thousands of cattle have been tested during the past two years without finding 1 per cent of tubercular animals. It is in these counties that the Live Stock Sanitary Board has done the greatest amount of work, and 550 tubercular cattle have been removed from them.

The increased desire of herd owners to purchase cows known to be free from tuberculosis is shown by the fact that many breeders of purebred cattle guarantee the animals they sell to be free from tuberculosis as established by tuberculin test. At all of the principal auction sales of cattle of the better class the tuberculin test is required by purchasers. Moreover, many dealers in ordinary dairy cows find it to their advantage to have them tested with tuberculin so that they may be able to guarantee all cattle they sell to be free from disease.

Since it is admitted by all who have carefully studied the subject that tuberculosis can never be eradicated from herds without the cooperation of herd owners and an earnest desire on their part that the disease shall be suppressed, the fact that the herd owners of Pennsylvania are so earnest in this matter constitutes a most hopeful and encouraging sign, and means that the disease will be suppressed. The question now arises as to whether the plan now employed is the best adapted to the purpose in view. The work that has been and is being done has the effect of not only removing diseased and dangerous animals, but, so far as possible, it insures a permanent result for money expended, and in addition it has an educational value that must be looked upon as of great importance. There can be no doubt as to the urgent sanitary grounds for the removal from herds and from the food supply of all cattle afflicted with advanced or udder tuberculosis. But this work alone would continue indefinitely if action were not taken to prevent the disease so that these particularly dangerously diseased animals would not be continually produced. It is for the purpose of striking at the root of the evil that the other measures described above are designed.

RHODE ISLAND.

The enforcement of laws for the control of contagious diseases of animals in Rhode Island is in the hands of the State Board of Agriculture. The board has power to appoint one or more persons in each county whose duty it shall be to inquire into the condition of any animal or carcass suspected of being affected with tuberculosis, and they may quarantine any such animal or carcass until inspected by the veterinarian employed by the board.

The commissioner of a county must notify the Secretary of the State Board of Agriculture of any suspected case of disease, who shall fix a day when the appraisers and the veterinary surgeon shall make an inspection; if the animal is found to be diseased, it is appraised and killed. The maximum limit of appraisement for any single ordinary or "scrub" animal is $50; for any single graded animal, $75; for any single registered animal, $100.

The appraisers may quarantine any suspected animals, and one-third of the cost of such quarantine is paid by the State.

The State pays to the owner one-half of the appraised value; but if a postmortem shows the animal not to have been affected with tuberculosis, the animal shall be paid for at its full appraised value. These provisions do not apply if the animal so killed has not been owned within the State for three months prior to its being killed.

A certificate giving a description of each animal brought into the State, the date and place of examination, the preparation of tuberculin used, the same to be signed by a veterinarian, shall be sent to the Secretary of the State Board of Agriculture, who in turn sends it, for purposes of identification, to the commissioner for the county where they are to enter the State. The penalty for violation is not to exceed $100.

Anyone desiring to import cattle into the State without obtaining the certificate mentioned above shall give written notice to the commissioner for the county where they are to go within forty-eight hours after their arrival in the State; such notification shall contain a list of the cattle, with full descriptions as to age, sex, etc. The cattle commissioner makes an examination of the cattle, and if found free of tuberculosis the fact is certified upon a permit and the cattle are released. If it is suspected that the cattle are affected with tuberculosis, the importer must make the tuberculin test; if this test confirms the suspicion, the cattle are killed, and the State is exempt from the payment of indemnity. If any animal so slaughtered is found not to be affected with tuberculosis, the State pays the full appraised value as indemnity.

The State Board of Agriculture and its representatives may enter any premises for enforcing the law.

The Governor is empowered to accept the rules and regulations of the Bureau of Animal Industry, and the inspectors of said Bureau shall have the right of inspection, quarantine, and condemnation of animals.

The laws relating to bovine tuberculosis are as follows:

LAWS.

AN ACT in amendment of Chapter 507, Chapter 627, Chapter 643, and Chapter 1025 of the Public Laws. (Passed May 19, 1892.)

It is enacted by the General Assembly as follows:

* * * * * * *

SEC. 8. The board may appoint one cattle commissioner in each county of the State whose duty it shall be to visit and inquire into the condition of any domestic animal in their respective counties whenever there is reason to suspect that any such animal is affected with tuberculosis or other contagious, infectious, or communicable disease.

SEC. 9. The board may employ veterinary surgeons.

SEC. 10. Whenever any animal shall be suspected by either of the cattle commissioners to be affected with tuberculosis the commissioner of the county where the animal is found shall immediately notify the Secretary of the State Board of Agriculture, who shall promptly fix a day when the appraisers, duly appointed as hereinafter provided, shall visit the suspected animal with the veterinary surgeon; and upon confirmation of the disease, and after appraisement of the value as hereinafter provided, the affected animal shall be killed, and the carcass disposed of in such a manner as will not be detrimental to the public health.

SEC. 11. For the purposes aforesaid the board may appoint some suitable person as appraiser whose duty it shall be to act with one of the cattle commissioners in each county, which two persons shall constitute the board of appraisers for the county. In case of disagreement between the two appraisers the veterinary surgeon shall act as a third appraiser, and the estimate of value of either two of them shall be final: *Provided*, That not more than $50 shall be allowed for any single native animal, nor more than $75 for any single grade animal, nor more than $100 for any single registered animal. And written notice of the amount of the appraisal signed by the board of appraisers shall be immediately given to the owner or claimant of said animal: *And provided further*, That any party aggrieved by any award made under the provisions of this section may appeal therefrom to said board within five days after the receipt of said notice.

SEC. 12. The board of appraisers, by and with the advice of the veterinary surgeon, is hereby authorized to quarantine any animal or animals supposed to be affected with a contagious, infectious, or communicable disease, and one-third of the cost of such quarantining shall be assumed and paid by the State, except as otherwise provided in Section 21 of this act.

SEC. 13. The State shall pay to the owner of any animal killed under the provisions of Section 10 of this act one-half of its appraised value: but if upon a post-mortem examination it shall be found that the slaughtered animal was not affected with tuberculosis, then the animal so killed shall be paid for at its full appraised value: *Provided*, That the State shall not pay for any diseased animal so killed if the animal has not been in the possession of its present owner three months previous to the day of the slaughter.

SEC. 14. When any person shall be shown to have knowingly brought into this State an animal suffering, or suspected to be suffering, with tuberculosis, or to have concealed the existence of such disease in any animal owned by him, such person shall not be entitled to any compensation for the animal slaughtered under this act, and shall be deemed guilty of a misdemeanor, and upon conviction shall be fined for such offense not exceeding $100.

SEC. 15. All persons having knowledge or reasons to suspect that any neat cattle or bovine animal has the contagious pleuropneumonia or Texas cattle fever, or that any horse has glanders or farcy, or that any bovine animal or horse has any other highly contagious, infectious, or communicable disease dangerous to public health, shall make report concerning the same by mail or otherwise to the Secretary of the State Board of Agriculture immediately, giving the name of the owner or custodian of the said animal or animals and the place of keeping of the same.

SEC. 16. No person having the care or custody of any animal having any one of the diseases mentioned in the preceding sections shall, knowing the same to have any such disease, sell or exchange, or permit the removal, use, or driving of the same upon any public highway, or the exposure of the same to contact with any other healthy animal of the same kind, except by permission of some member or agent of the State Board of Agriculture. Any person so doing shall be deemed guilty of a misdemeanor, and on being convicted shall be fined not exceeding $100.

SEC. 17. The State Board of Agriculture, or its duly authorized representatives, having reason to suspect the existence of any of the diseases mentioned in this act upon any grounds or premises, are hereby authorized and empowered to enter upon such grounds or premises for the enforcement of the provisions of this act.

SEC. 18. The Governor is hereby authorized to accept, on behalf of the State, the rules and regulations prepared by the Commissioner of Agriculture under and in pursuance of Section 3 of an act of Congress approved May 29, 1884, entitled "An act for the establishment of a Bureau of Animal Industry, to prevent the exportation of diseased cattle, and to provide means for the suppression and extirpation of pleuropneumonia and other contagious diseases among domestic animals," and to cooperate with the authorities of the United States in [enforcing] the provisions of said act.

SEC. 19. The inspectors of the Bureau of Animal Industry of United States, in cooperation with the State Board of Agriculture, shall have the right of inspection, quarantine, and condemnation of animals affected with any contagious, infectious, or communicable disease, or suspected to be so affected, or that have been exposed to any such disease, and for these purposes are hereby authorized and empowered to enter upon any ground or premises. Said inspectors, in cooperation with the State Board of Agriculture, shall have the power to call on sheriffs, constables, and peace officers to assist them in the discharge of their duties in carrying out the provisions of the act of Congress approved May 29, 1884, establishing the Bureau of Animal Industry; and it is hereby made the duty of sheriffs, constables, and peace officers to assist said inspectors when so requested; and said inspectors shall have the same power and protection as peace officers while engaged in the discharge of their duties.

SEC. 20. The State shall not be liable for any damages or expenses incurred under Sections 18 and 19 of this act.

SEC. 21. Any person or persons who shall wilfully or intentionally interfere with any officer or officers, duly authorized to carry out the provisions of this act, or who shall wilfully or intentionally violate the provisions of the quarantine authorized by Section 13 of this act, shall be deemed guilty of a misdemeanor, and upon conviction, shall be liable to imprisonment not exceeding three months or a fine not exceeding $100, or both, at the discretion of the court.

SEC. 22. The State Board of Agriculture is hereby authorized to fix the compensation of the cattle commissioners, appraisers, and veterinary surgeons, to prescribe their duties, and to remove them when deemed expedient so to do.

SEC. 23. The Secretary of the State Board of Agriculture shall make a monthly report to the Governor of the obligations of the State Board of Agriculture; and the State Auditor is hereby directed to draw his orders on the general Treasurer for the payment of the same upon vouchers approved by the Governor

SEC. 24. The sum of $15,000, or so much thereof as may be authorized, is hereby annually appropriated for the purpose of carrying out the several provisions of this act, including all salaries and expenses created under the authority hereof.

SEC. 25. All prosecutions for offenses against the provisions of this chapter shall be commenced within sixty days after the same shall have been committed and not afterwards.

SEC. 26. Chapter 507, Chapter 627, Chapter 643, and Chapter 1025 of the Public Laws, and all acts and parts of acts inconsistent herewith, are hereby repealed and this act shall take effect immediately upon its passage.

AN ACT in amendment of Chapter 1082 [Chapter 99, General Laws] of the Public Laws, entitled "An act in amendment of Chapter 507, Chapter 627, Chapter 643, and Chapter 1025 of the Public Laws," passed May 25, 1892.

It is enacted by the General Assembly as follows:

SECTION 1. Section 8 of Chapter 1082 [Chapter 99, General Laws] of the Public Laws is hereby amended so as to read as follows:

"SEC. 8. The board may appoint one cattle commissioner in each county of the State, whose duty it shall be to visit and inquire into the condition of any domestic animal in their respective counties whenever there is reason to suspect that any such animal, or the carcass of any such animal, is affected with tuberculosis or other contagious, infectious, or communicable disease; and the commissioners in their respective counties are authorized to quarantine any such animal, or the carcass of any such animal, until inspected by the veterinarian employed by the board."

SEC. 2. Section 10 of Chapter 1082 [Chapter 99, General Laws] of the Public Laws is hereby amended so as to read as follows:

"SEC. 10. Whenever any animal shall be suspected by either of the cattle commissioners to be affected with tuberculosis, the commissioner of the county where the animal is found shall immediately notify the Secretary of the State Board of Agriculture, who shall promptly fix a day when the appraisers, duly appointed as hereinafter provided, shall visit the suspected animal with the veterinarian; and upon confirmation of the disease, and after appraisement of the value as hereinafter provided, the affected animal shall be killed, and the carcass disposed of in such a manner as will not be detrimental to the public health. Anyone having reason to suspect that any horse or other animal is affected with glanders, farcy, or any contagious or communicable disease, shall immediately report the same to the Secretary of the State Board of Agriculture, who shall notify the veterinarian employed by the board, and said veterinarian shall promptly examine the suspected animal, and if it is found to be affected with glanders, farcy, or any contagious or communicable disease, the veterinarian shall cause the said animal to be killed and the carcass to be disposed of in such manner as shall not be detrimental to the public health."

SEC. 3. This act shall take effect upon and after its passage, and all acts and parts of acts inconsistent herewith are hereby repealed.

AN ACT in amendment of Chapter 99 of the General Laws. (Approved May 15, 1896.)

It is enacted by the General Assembly as follows:

SECTION 1. Section 13 of Chapter 99 of the General Laws is hereby amended to read as follows:

"SEC. 13. The State shall pay to the owner of any animal killed under the provisions of Section 10 of this act one-half of its appraised value; but if upon post-mortem examination it shall be found that the slaughtered animal was not affected by tuberculosis, then the animal so killed shall be paid for at its full appraised value: *Provided*, That the State shall not pay for any diseased animal so killed if the animal has not been owned by some person in the State and found in the State three months previous to the day of slaughter."

SEC. 2. All persons, corporations, or companies intending to ship, transport, or to drive cattle into the State must produce a certificate to the effect that the cattle to be shipped, transported, or driven are free from tuberculosis as far as may be determined by physical examination and the tuberculin test. The certificate shall give a description of each animal brought into the State sufficiently accurate for identification, and shall give also the date and place of examination of each animal, the preparation of tuberculin used, the quantity injected, the temperature immediately before inoculation, the temperature at the eleventh hour and every two hours subsequent thereto for at least ten hours or until the reaction is completed. The certificate shall be signed by a veterinarian who is a graduate of a recognized veterinary college, and shall be sent immediately to the Secretary of the State Board of Agriculture, who shall immediately notify a commissioner of the county into which the cattle are to be shipped, transported, or driven, and said commissioner shall examine the cattle to identify them. Failure to comply with the law shall be considered a misdemeanor, punishable by a fine not to exceed $100.

SEC. 3. Complaints for the violation of the provisions of this chapter shall be made by the Secretary of the State Board of Agriculture, and said Secretary shall be exempt from giving security for costs on any complaint made as aforesaid.

SEC. 4. Section 8 of Chapter 99 of the General Laws is hereby amended to read as follows:

"SEC. 8. The board may appoint one or more commissioners in each county of the State whose duty it shall be to visit and inquire into the condition of any domestic animal in their respective counties whenever there is reason to suspect that any such animal or the carcass of any such animal is affected with tuberculosis or other contagious, infectious, or communicable disease; and the commissioners in their respective counties are authorized to quarantine any such animal, or the carcass of any such animal, until inspected by the veterinarian employed by the board."

SEC. 5. This act shall take effect upon its passage, and all acts and parts of acts inconsistent herewith are hereby repealed.

AN ACT in amendment of and in addition to Chapter 344 of the Public Laws, entitled "An act in amendment of Chapter 99 of the General Laws." (Passed May 4, 1900.)

It is enacted by the General Assembly as follows:

SECTION 1. All persons desiring to import cattle into this State or from other States without obtaining the certificate required by Section 2 of Chapter 344 of the Public Laws, shall give written notice to the cattle commissioner of the county into which the cattle are brought within forty-eight hours after the arrival into the State of such cattle, and such notification shall contain a specified list of the cattle so imported, with a full description of age, sex, and such other particulars as may be necessary for the identification of the said cattle, and the place where they can be found.

SEC. 2. Immediately upon the receipt of such notification the cattle commissioner of the county into which said cattle are imported shall proceed within seventy-two hours to the place designated and make a physical examination of said cattle; and if upon such examination said cattle shall be deemed free from tuberculosis, it shall be so certified by said cattle commissioner upon a permit, and a duplicate thereof to be given to the owner of said cattle, and the cattle shall be released for the use and benefit of the owner.

SEC. 3. If after such examination the cattle commissioner shall be of the opinion that the cattle so examined are afflicted with tuberculosis, he shall require of the importer that the suspected cattle be tested with tuberculin, said test to be applied by a veterinarian of a recognized veterinary college, who shall give to the said commissioner a certificate in writing that such test has been applied, together with a statement of the tuberculin used, quantity injected, temperature of each animal before inoculation, and at the eleventh and every two subsequent hours thereafter, for at least ten hours, or until reaction is complete, and a duplicate thereof shall be given to the owner of said cattle and the original certificate shall be sent by the said commissioner to the Secretary of the State Board of Agriculture. If after such test it shall be proved that such suspected cattle are afflicted with tuberculosis, such diseased cattle shall be immediately slaughtered upon written order of said commissioner, and the State shall not be required to compensate the owner for their loss, and the owner shall pay for testing such cattle with tuberculin; but if such cattle shall be found free from tuberculosis they shall be released for the use and benefit of the owner. If any of such cattle are slaughtered, and upon postmortem examination it shall be found that the slaughtered animal was not afflicted with tuberculosis, then the animal so killed shall be paid for by the State at its full appraised value in accordance with the provisions of Section 11 of Chapter 99 of the General Laws.

SEC. 4. Any person violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and shall be fined not more than $100.

SEC. 5. This act shall take effect from and after its passage.

SOUTH CAROLINA.

South Carolina has no law relative to bovine tuberculosis.

SOUTH DAKOTA.

There is no special law relative to bovine tuberculosis in South Dakota. The law against contagious diseases, which is very brief, is given below:

LAW.

AN ACT to prevent the spreading of contagious diseases among domestic animals. (Approved March 6, 1895.)

Be it enacted by the Legislature of the State of South Dakota:

SECTION 1. Any person who shall hereafter knowingly and wilfully bring or cause to be brought into this State any hogs or other domestic animals infected with contagious disease, or any person who shall knowingly carry or drive or cause to be carried or driven upon any public highway or within the distance of one mile of any such highway in this State, or who shall knowingly and wilfully suffer or permit any hogs or other domestic animals infected with contagious disease to run at large, shall be fined in any sum not to exceed $100, and shall be liable in a civil action for all damages occasioned thereby.

SEC. 2. An emergency is hereby declared to exist, and this act shall take effect and be in force from and after its passage and approval.

TENNESSEE.

Tennessee has no special law relative to tuberculosis. The State Board of Health takes cognizance of tuberculosis as one of the "communicable diseases among domestic animals."

The State Board of Health has general supervision of contagious and infectious diseases, and is empowered to establish quarantine against animals having such diseases, and to make rules and regulations to carry the law into effect. The penalty for violation of the rules and regulations of the quarantine is not less than $50 or more than $500, or imprisonment for a period of three months, or both fine and imprisonment.

Local boards of health are required to notify the State Board of Health of the outbreak of any contagious disease or whether the presence of such a disease is suspected, whereupon the State Board shall take measures for the restriction and stamping out of the disease. Neglect to notify the State Board is punishable by fine or imprisonment.

The State Board of Health is empowered to kill animals after appraisement at their value at the time they are killed. The board of appraisement certifies the value to the county in which the animal is killed, and the same becomes a charge against that county.

The importation of animals so diseased, or disposing of such animals within the State, is punishable by a fine not exceeding $100 or by imprisonment not exceeding three months, or by both fine and imprisonment.

It is further made the duty of owners or agents of animals discovered to be or suspected of being affected with any contagious or infectious disease to report the fact to the local board of health, which will at once have the matter investigated. It may also establish temporary quarantine.

The laws which are applicable to tuberculosis and the regulations which have been issued by the State Board of Health are as follows:

LAWS.

AN ACT to prevent the spread of communicable diseases among domestic animals in the State of Tennessee. (Passed April 10, 1893.)

SECTION 1. *Be it enacted by the General Assembly of the State of Tennessee*, That upon the nomination of the State Board of Health of a qualified person, resident of the State, and who is a graduate of some regular and established veterinary college and skilled in the art of veterinary science, the Governor shall appoint and commission the same State Veterinary Surgeon, whose term of office shall be for five years from date of appointment, or until his successor shall have been appointed and duly qualified; said State Veterinary Surgeon to have such annual compensation as may be determined and agreed upon by the said State Board of Health: *Provided*, That the said State Board of Health shall have the power to remove said State Veterinary Surgeon when, in their judgment, the public welfare requires it.

SEC. 2. *Be it further enacted*, That the said State Veterinary Surgeon shall, before entering upon the discharge of his duties, take an oath or affirmation, as provided by law in the case of other State officers, and shall immediately execute a bond to the State of Tennessee in the sum of $10,000, and with such security as shall be approved by the said State Board of Health, and file the same in the office of the Secretary of State, conditioned for the faithful performance of the duty imposed upon said State Veterinary Surgeon as may be prescribed by said State Board of Health.

SEC. 3. *Be it further enacted*, That the State Board of Health shall have the general supervision of all communicable diseases among domestic animals within, or that may be in transit through, the State, and they are empowered to establish quarantine against any animal or animals thus diseased, or that have been exposed to others thus diseased, whether within or without the State, and may make rules and regulations against the spread and for the suppression of said disease or diseases as in their judgment may seem necessary and proper; and in the enforcement of such rules and regulations said State Board of Health shall have the power to call on any one or more of the peace officers, whose duty it shall be to give all the assistance in their power.

SEC. 4. *Be it further enacted*, That any person who wilfully hinders, obstructs, or otherwise disregards or evades such quarantine as said State Board of Health may declare, or violate any rule or regulation they shall make in attempting to stamp out or restrict the spread of any disease or diseases aforementioned, or who shall resist any peace officer, acting under said Board of Health, shall be guilty of a misdemeanor, and upon conviction shall be fined not less than $50 nor more than $500, or imprisonment in the county jail for a period of three months, one or both, at the discretion of the court.

SEC. 5. *Be it further enacted*, That in the event of any communicable disease aforesaid breaking out, or being reasonably suspected to exist in any locality in this State, it shall be the duty of the local health authorities, or persons owning or having any interest whatever in said animals, immediately to notify the said State Board of Health of the fact, when said Board shall institute such measures for the restriction or stamping out of such disease or diseases as they may think necessary. Any person or persons above specified, who shall neglect or refuse to notify said State Board of Health of the existence of any communicable disease as aforementioned, shall be guilty of a misdemeanor, and, upon conviction, shall be fined not more than $10, or confined in the county jail not exceeding two months, or both, at the discretion of the court.

SEC. 6. *Be it further enacted*, That whenever, in the opinion of the State Board of Health, the public safety demands the destruction of any animal or animals, under the provisions of this act, they shall, before ordering the killing or slaughtering of the same, appoint two competent and disinterested freeholders, who shall be affirmed or sworn before proceeding to act, and they, together with the State Veterinary Surgeon, shall thus constitute a board of appraisement to make a just and true valuation of said animal or animals to be so killed or slaughtered, and in valuing shall consider the health and condition of animal when killed; and after said board of appraisement shall make and deliver a written certificate, setting forth all the essential facts in the case to the lawful owner, who shall present the same for payment to the chairman of the court of the county in which such animal or animals are so killed or slaughtered, and the same shall constitute a county charge, and to be paid as other claims against the county now are.

SEC. 7. *Be it further enacted*, That any person or persons who knowingly shall import or bring into this State any animal or animals affected with pleuropneumonia, rinderpest, glanders, or other communicable diseases, or who shall sell or trade, or offer for sale or trade, any animal or animals so diseased, shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not more than $100 or imprisonment in the county jail for a period not exceeding three months, or both, in the discretion of the court.

SEC. 8. *Be it further enacted*, That the Governor of the State, with the State Board of Health, may cooperate with the Government of the United States for objects of this act, and the Governor is hereby authorized to receive and receipt for any moneys receivable by this State, under the provisions of any act of Congress which may at any time be in force upon this subject, and to pay the same into the State treasury, to be used according to the act of Congress and the provisions of this act, as nearly as may be.

SEC. 9. *Be it further enacted*, That all laws or parts of laws in conflict with this act be, and the same are hereby, repealed, and that this act take effect from and after its passage, the public welfare requiring it.

AN ACT to amend Chapter 180, Acts of 1893, passed April 10th, 1893, and approved April 10th, 1893, entitled "An act to prevent the spread of communicable diseases among domestic animals in the State of Tennessee," and to provide greater protection to the live stock industry of the State, and to provide penalties for the violation of same. (Passed February 12, 1897.)

SECTION 1. *Be it enacted by the General Assembly of the State of Tennessee*, That it shall be the duty of the owner or person in charge of any domestic animal or animals who discovers, suspects, or has reason to believe that any such animal or animals as aforesaid are affected with any communicable disease to immediately report the fact, belief, or suspicion to the county board of health of the county in which said domestic animal or animals are found.

* * * * * * *

SEC. 3. *Be it further enacted*, That the county board of health of each county, whenever any case or cases of communicable disease among the domestic animals of their county is reported to exist, shall immediately cause the same to be investigated, preferably by a qualified veterinarian, and, should said investigation show a reasonable probability that such animal or animals is affected with a communicable disease, the said county board of health shall immediately establish such temporary quarantine as may be necessary, in their judgment, to prevent the spread of such disease, and they shall without delay report all action taken to the State Board of Health, and the acts of the said county board of health establishing said temporary quarantine shall have the same force and effect as though established by the State Board of Health until such time as the said State Board of Health shall take charge of the case or cases, and county boards of health of those counties which form the north border of the quarantine line, as established by the Federal authorities, shall adopt and enforce such rules and regulations as said State Board of Health may prescribe, having for their object the prevention and restriction of splenetic, or Texas, fever, or any communicable disease among domestic animals which may be either threatened or developed in such localities. And all expenses incurred by the county boards of health in carrying out the provisions of this act shall be a county charge and shall be paid in like manner as other expenses of the county now are.

* * * * * * *

SEC. 5. *Be it further enacted*, That any person who owns or is in possession of live stock which is reported, or suspected, to be affected with any communicable disease, or with insects which may produce such diseases, who shall refuse to allow said county board of health, or any one acting under its order, to examine such stock, or who shall hinder or obstruct the said board or its appointee in any examination of, or in any attempt to examine, such stock, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $50 nor more than $200.

Sec. 6. *Be it further enacted*, That any person who shall have in his or her possession any domestic animal affected with any communicable disease or fever tick, knowing such animal to be affected, who shall permit such animal or animals to run at large, or who shall keep such animal or animals where other domestic animals not affected by or previously exposed to such communicable disease may be exposed to its contagion or infection, or who shall ship, drive, sell, traffic, or give away such animal or animals which have been exposed to such infection or contagion, or who shall move or drive any domestic animal in violation of any direction, rule, regulation, or order of the said State Board of Health establishing and regulating live stock quarantine, or the restriction or spread of communicable diseases among domestic animals, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any amount not less than $50 nor more than $100 for each of such exposed or diseased domestic animals which he or she shall permit to run at large, or sell, ship, drive, trade, or give away, in violation of the provisions of this act: *Provided*, That any owner of domestic animals which have been affected with or exposed to any communicable disease may dispose of the same after having obtained from said State Board of Health, or its authorized veterinarian, a certificate of health for such animal or animals.

Sec. 7. *Be it further enacted*, That this act take effect from and after its passage, the public welfare requiring it.

PROCLAMATION.

Office of State Board of Health,
Nashville, Tenn., June 1, 1900.

Whereas it has been ascertained by the State Board of Health of the State of Tennessee that a great many of the dairy and breeding cattle in other States are infected with a dangerous and infectious disease in cattle, known as tuberculosis, and that a great many of said cattle are being shipped into the State of Tennessee for breeding and dairy purposes, it is therefore ordered that from and after June 1, 1900, it shall be unlawful for any cattle to be shipped or transported from any State or Territory into the State of Tennessee for breeding or dairy purposes: *Provided, however*, That shipments may be made from other States into the State of Tennessee of breeding and dairy cattle after said cattle have been tested with tuberculin and found free of tuberculosis, and a permit and a bill of health given by a qualified veterinarian or bacteriologist acting under the orders and directions of the Live Stock Sanitary Board of the respective State or Territory, and the certificate so given by such examiner shall be given in duplicate, the original of which shall be forwarded to the State Board of Health at Nashville, Tennessee, and the duplicate given to the railroad or other transportation company, to be attached to the bill of lading for said cattle; and no railroad or other transportation company shall accept any such cattle or bring or ship any such cattle into the State of Tennessee for breeding or dairy purposes without the certificate and bill of health herein provided for, and no railroad or other transportation company shall accept from their connecting lines any cattle shipped in violation of this provision.

Nothing in this resolution shall be construed as exempting from other cattle quarantine restrictions.

By order of the—

State Board of Health of Tennessee,
J. A. Albright, M. D.,
Secretary and Executive Officer.
W. H. Dunn, *State Live Stock Commissioner.*

TEXAS.

The official control of contagious diseases of animals in Texas is lodged in a Live Stock Sanitary Commission, composed of three members who are practical stock raisers and appointed by the Governor of the State. The duty of the commission is "to protect the domestic animals of this State from all contagious or infectious diseases of a malignant character, whether such diseases exist in Texas or elsewhere; and for this purpose they are hereby authorized and empowered to establish, maintain, and enforce such quarantine lines and sanitary rules and regulations as they may deem necessary." Tuberculosis is not specifically mentioned.

The laws (R. S., 1895) bearing upon contagious diseases are given below, and the rules and regulations issued are embodied in the proclamations by the Governor.

LAW.

[TITLE 102—STOCK LAW. CHAPTER 7.]

ARTICLE 5043*a*. There shall be appointed by the Governor, and with the consent of the Senate, a Live Stock Sanitary Commission of the State of Texas, composed of three members. Before entering upon the duties of their office said commissioners shall take and subscribe to the usual oath of office and file the same with the Secretary of State; and they shall also, before entering upon the performance of their duties, execute a bond, to be approved by the State Comptroller, in the sum of $10,000 each, conditioned that they will faithfully perform the duties of their office, which said bond they shall file with the Secretary of State. The term of office of said commissioners shall be for a period of two years next from the day of their qualification and until their successors shall have been appointed and qualified.

ART. 5043*b*. The commissioners whose appointment is provided for in the preceding article shall each be practical live-stock raisers in the State of Texas, and shall have been actively engaged in said business for at least five years next preceding the date of their appointment, and shall be bona fide residents of and stock raisers in the particular section of the State from which they may be appointed. One of said commissioners shall be appointed from the west, one from the south, and one from the eastern portion of said State.

ART. 5043*c*. It shall be the duty of the commission provided for in article 5043*a* to protect the domestic animals of this State from all contagious or infectious diseases of a malignant character, whether said diseases exist in Texas or elsewhere; and for this purpose they are hereby authorized and empowered to establish, maintain, and enforce such quarantine lines and sanitary rules and regulations as they may deem necessary. It shall also be the duty of said commission to cooperate with live stock quarantine commissioners and officers of other States and Territories, and with the United States Secretary of Agriculture, in establishing such interstate quarantine lines, rules, and regulations as shall best protect the live-stock industry of this State against Texas, or splenetic, fever. It shall be the duty of said commission, upon receipt by them of reliable information of the existence among the domestic animals of the State of any malignant disease, to go at once to the place where any such disease is alleged to exist and make a careful examination of the animals believed to be affected with any such disease and ascertain if possible what, if any, disease exists among the live stock reported to be affected, and whether the same is contagious or infectious, and if said disease is found to be of a malignant, contagious, or infectious character, they shall direct and enforce such quarantine lines and sanitary regulations as are necessary to prevent the spread of any such disease. And no domestic animal infected with disease, or capable of communicating the same, shall be permitted to enter or leave the district, premises, or grounds so quarantined, except by authority of the commissioners. The said commission shall also, from time to time, give and enforce such directions and prescribe such rules and regulations as to separating, feeding, and caring for such diseased and exposed animals as they shall deem necessary to prevent the animals so affected with such disease from coming in contact with other animals not so affected And the said commissioners are hereby authorized and empowered to enter upon any grounds or premises to carry out the provisions of this act.

ART. 5043*d*. When the commission shall have determined the quarantine lines and other regulations necessary to prevent the spread among domestic animals of Texas of any malignant, contagious, or infectious disease found to exist among the live stock of this State or elsewhere, and given their orders as hereinbefore provided, prescribing quarantine and other regulations, they shall notify the Governor of the State of Texas, who shall issue his proclamation proclaiming the boundary of such quarantine around such diseased stock and the orders, rules, and regulations prescribed by the commission; and such commission shall give such notice as may to them seem best to make the quarantine established by them effective.

ART. 5043*e*. The commission provided for in this chapter shall have power to purchase such supplies and material as may be necessary to carry into full effect all orders by them given as hereinbefore provided, which said supplies and material and wages and expenses of the veterinarian hereinafter provided for shall be paid out of the moneys hereinafter appropriated, on the warrant of the comptroller, issued to said commissioners upon their filing with the comptroller an itemized account thereof properly verified by affidavit: *Provided*, That no material or supplies may be purchased by the commissioners except such as may be necessary to carry into effect the quarantine and other regulations prescribed by them. And such commissioners shall have the power to employ a competent veterinarian to assist them in the investigation of the diseases among the live stock of this State whenever they may deem the services of one necessary: *Provided*, That the compensation of such veterinarian shall not exceed the sum of $10 per day and actual expenses while so employed: *And provided further*, That the expenditures for the compensation of veterinarians shall not exceed $900 in any one year.

ART. 5043*f*. It shall be the duty of the railway corporations doing business in the State to cleanse and disinfect the cars used by them in transporting live stock in or through this State at such times and places as the commissioners may designate, whenever, in the opinion of the commissioners, any such order may be necessary to prevent the spread of infectious or contagious disease. And such corporations violating the provisions of this article shall be liable to a penalty of $500 for each offense, to be recovered in a civil action to be prosecuted under the direction of the Attorney-General in the name of the State of Texas.

ART. 5043*g*. It shall be the duty of any owner or person in charge of any domestic animal or animals who discovers, suspects, or has reason to believe that any of his domestic animals or domestic animals in his charge are affected with any contagious or infectious disease to immediately report such fact, belief, or suspicion to the commission and to the sheriff and county clerk of the county in which said domestic animals are found.

ART. 5043*h*. The commissioners appointed by the Governor, as hereinbefore provided, shall receive $5 per day for the time by them necessarily employed in the discharge of the duties required by this chapter; and said commissioners hereinbefore provided for shall receive in addition thereto the actual and necessary traveling expenses incurred by them and paid in the discharge of the duties required of them by this provision of this chapter, which said per diem and expenses shall be drawn from the treasury on the warrant of the Comptroller, to be issued to said commissioners on their filing with the Comptroller an itemized account thereof properly verified by affidavit.

ART. 5043*i*. The Live Stock Sanitary Commission shall have power to call upon any sheriff, deputy sheriff, or constable to execute their orders, and such officers shall obey the orders of said commissioners; and the officer or officers performing these duties shall each be entitled to $2.50 per day for himself and horse, which payment shall be made upon a sworn account, approved by said commissioners: *Provided*, Said expenses under this article shall not exceed in any event $500 per annum.

ART. 5043*j*. The sum of $20,000, or so much thereof as may be necessary, is hereby appropriated, out of the general revenue fund not otherwise appropriated, for the purpose of carrying into effect the provisions of this chapter: *Provided*, That the exhaustion of the appropriation herein made shall terminate the liability of the State for the two years next following and absolve it from any future claims of any and all persons who may have claims, real or pretended, under the provisions of this chapter.

(Amended January 28, 1897.)

ART. 5043*k*. SECTION 1. *Be it enacted by the Legisislature of the State of Texas, That* ARTICLE 5043*k* be, and the same is, amended so as hereafter to read as follows: Any quarantine line that may be fixed by the Live Stock Sanitary Commission against Texas or splenetic, fever shall be so fixed as to conform to the Federal quarantine line established or that may be established by the United States Department of Agriculture.

SEC. 2. The fact that there is serious question of the power of the Live Stock Sanitary Commission to establish a quarantine line in conformity with the line established by the United States Department of Agriculture, and, unless such line is established, the entire State may be quarantined by the United States authorities and incalculable injury done to the cattle interests of Texas, creates an imperative public necessity, and an emergency exists that the constitutional rule requiring all bills to be read on three several days be suspended, and that this bill be put on the third reading and final passage, and that the act take effect and be in force from and after its passage, and it is so enacted.

ART. 5043*l*. No quarantine line shall be established at any time, nor regulations made in regulation thereto, unless two of the Live Stock Sanitary Commissioners agree thereto.

ART. 5043*m*. This chapter does not repeal any law in force for the protection of domestic animals, but is cumulative thereto.

PROCLAMATIONS.

Whereas The Live Stock Sanitary Commission of the State of Texas on December 14, 1899, adopted the following rule and regulation:

First. Whereas The Live Stock Sanitary Commission of the State of Texas have ascertained that a great many of the breeding and dairy cattle in the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Ohio, Kentucky, Tennessee, Indiana, Michigan, Illinois, Wisconsin, Minnesota, Iowa, Nebraska, and Colorado are infected with a contagious and infectious disease in cattle known as tuberculosis, and that a great many of said cattle are being shipped into the State of Texas for breeding and dairy purposes:

It is therefore ordered that from this date it shall be unlawful for any cattle to be shipped or transported from either of the above-named States into the State of Texas for breeding or dairy purposes: *Provided, however,* That shipments may be made from such States into the State of Texas for breeding and dairy purposes after said cattle have been examined and found free of tuberculosis, and a permit and bill of health given by a veterinarian of the United States Bureau of Animal Industry, or a veterinarian acting under the order and direction of the Live Stock Sanitary Board of either of the above-named States, and the certificates so given by such veterinarians shall be given in duplicate, the original of which shall be forwarded to W. B. Tullis, Quanah, Texas, and the duplicate given to the railroad company to be attached to the bill of lading for said cattle. And no railroad company shall accept any such cattle, nor bring nor ship any such cattle into the State of Texas from either of the above-named States, for breeding or dairy purposes, without the certificate and bill of health herein provided for; and no railroad company shall accept from its connecting lines any cattle shipped in violation of this provision.

Second. *Provided, however,* That native cattle, that is, cattle born and raised in the States of Nebraska and Colorado, may be moved into the State of Texas upon the owner or person in charge thereof making affidavit, supported by the affidavit of two credible disinterested citizens of said State, stating in substance that said cattle are natives of said States of Colorado and Nebraska, which said affidavit shall be made before some officer authorized to administer oaths; and the above affidavit so made shall be given in duplicate, the original of which shall be forwarded to W. B. Tullis, Quanah, Texas, and the duplicate given to the owner or person in charge of said cattle, to be attached to the bill of lading for said cattle; and no railroad company shall accept any such cattle for shipment nor bring nor ship any such cattle into the State of Texas, for breeding or dairy purposes, from the said States of Nebraska or Colorado, nor accept from its connecting lines any cattle shipped in violation of this provision.

Third. It is further ordered that a violation of any of the provisions hereinabove set out shall be an offense and punishable as is provided by the laws of the State of Texas.

Now, therefore, I, Joseph D. Sayers, Governor of the State of Texas, in conformity with the provisions of Chapter 7, Title 102, of the Revised Statutes of Texas of 1895, do hereby declare that the rule and regulation set forth in the above-recited order of the Live Stock and Sanitary Commission of Texas shall be in full force and effect from and after the first day of January, A. D. 1900.

In witness whereof, I have hereunto set my hand and caused the seal of the State to be affixed at Austin, this 28th day of December, A. D. 1899.

JOSEPH D. SAYERS, *Governor.*

By the Governor:
D. H. HARDY,
Secretary of State.

Whereas the Live Stock Sanitary Commission of the State of Texas, on October 18, 1900, recommended the adoption of the following regulations:

* * * * * * *

Twelfth. And whereas it has been ascertained by the Live Stock Sanitary Commission of the State of Texas that a great many of the dairy and breeding cattle in the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Ohio, Kentucky, Tennessee, Indiana, Michigan, Illinois, Wisconsin, Minnesota, Iowa, Nebraska, Missouri, and Colorado are infected with a dangerous and infectious disease in cattle, known as tuberculosis, and that a great many of said cattle are being shipped into the State of Texas for breeding and dairy purposes; it is therefore ordered that from this date it shall be unlawful for any cattle to be shipped or transported from either of the above-named States to the State of Texas for breeding or dairy purposes: *Provided, however*, That shipment may be made from said States into the State of Texas of breeding and dairy cattle after said cattle, and the herd from which they originated, have been examined and found free of tuberculosis, and a permit and a bill of health given by a veterinarian of the United States Bureau of Animal Industry, or a veterinarian under the order and direction of the Live Stock Sanitary Board of either of the above-named States, and the certificate so given by such veterinarian shall be given in duplicate, the original of which shall be forwarded to M. M. Hankins, Quanah, Tex., and the duplicate given to the railroad company to be attached to the bill of lading for said cattle; and no railroad shall accept any such cattle nor bring or ship any such cattle into the State of Texas from either of said States for breeding or dairy purposes without the certificate and bill of health herein provided for; and no railroad company shall accept from its connecting lines any cattle shipped in violation of this provision: *Provided, however*, That native cattle—that is, cattle born and raised in the States of Nebraska and Colorado—may be moved into the State of Texas upon the owner or the person in charge thereof making affidavit, supported by the affidavit of two credible, disinterested citizens of said State, stating, in substance, that said cattle are natives of said State of Colorado or Nebraska, as the case may be, which said affidavit shall be made before some officer authorized to administer oaths; and the above affidavit so made shall be given in duplicate, the original of which shall be forwarded to M. M. Hankins, Quanah, Tex., and the duplicate given to the owner or person in charge of said cattle, to be attached to the bill of lading for said cattle; and no railroad company shall accept such cattle for shipment, nor bring nor ship any such cattle into the State of Texas, for breeding or dairy purposes, from the State of Colorado or Nebraska, nor accept from its connecting lines any cattle shipped in violation of this provision: *And provided further*, That cattle may be shipped into Texas for show or exhibit at public fairs, or for immediate slaughter or export from Texas ports, without such certificate; but if such show cattle are sold in Texas, then before being delivered to purchasers they shall be tested as herein stated.

* * * * * * *

Seventeenth. It is further ordered that a violation of any or either of the above rules and regulations shall be an offense, and punishable as is provided by the laws of the State of Texas.

Now, therefore, I, J. N. Browning, Lieutenant-Governor and Acting Governor of the State of Texas, in conformity with the provisions of Chapter 7, Title 102, of the Revised Statutes of Texas of 1895, do hereby declare that the quarantine line and the rules and regulations set forth in the above-recited order of the Live Stock and Sanitary Commission of the State of Texas shall be in full force and effect from and after November 1, 1900, and shall remain in effect for one year thereafter, unless otherwise ordered in due form of law.

In witness whereof I have hereunto set my hand and caused the seal of the State to be affixed at Austin, the 20th day of October, A. D. 1900.

J. N. BROWNING,
Lieutenant-Governor and Acting Governor.

By the Governor:
D. H. HARDY, *Secretary of State.*

UTAH.

The enforcement of the laws of Utah relating to the public health devolves upon a State Board of Health, consisting of seven persons, appointed by the Governor. One of the duties of the board is to make "investigations and inquiries respecting the causes of diseases, especially of epidemic diseases, including those of domestic animals."

Tuberculosis is implied in the section prohibiting the importation of "any domestic animals afflicted with a contagious or infectious disease." Domestic animals so affected are not permitted to run at large, and may not be sold without disclosing their condition to the purchaser. Such animals must be kept separate from others.

A special act relative to bovine tuberculosis, passed in 1899, provides that cattle having tuberculosis shall not be kept by dairymen, but shall be killed by the Dairy and Food Commissioner. There appears to be no provision for the tuberculin test or indemnity.

Sections of the Revised Statutes bearing upon tuberculosis as one of the infectious diseases of animals are as follows:

LAW.

58. Any person owning or having in charge any domestic animal afflicted with a contagious or infectious disease, that, knowing such animal to be diseased, shall bring or drive the same into this State, shall be deemed guilty of a misdemeanor.

60. Any person owning or having in charge any domestic animal afflicted with a contagious or infectious disease, that, knowing such animal to be diseased, shall allow it to run at large upon any uninclosed land, common, or highway, or that shall sell or dispose of such animal without fully disclosing its condition to the purchaser, shall be deemed guilty of a misdemeanor.

61. Any person owning or having in charge any domestic animal afflicted with a contagious or infectious disease shall immediately remove the same to some place where it can not endanger the health of other domestic animals.

62. Any person violating any of the provisions of this chapter, in addition to the penalties herein provided, shall be liable for all damages that may accrue to any party damaged by reason of said animal imparting disease.

67. If the owner or person in charge of any such animal at the time of its death shall fail to remove or bury the same, as in this chapter provided, any citizen may bury or remove such animal and collect pay therefor from the owner, if known, or from the county where the owner is unknown. It shall be the duty of all sheriffs, constables, and city marshals to see that the provisions of this chapter are carried into effect.

AN ACT to prevent persons selling or furnishing milk or dairy products, from keeping cattle having tuberculosis or other contagious or infectious diseases. Approved, March 9, 1899.

Be it enacted by the Legislature of the State of Utah:

SECTION 1. No person selling, exchanging, furnishing, or delivering milk or dairy products shall have in his possession, at any place where milch cows are kept, any cattle having tuberculosis or other infectious or contagious disease.

SEC. 2. It shall be the duty of the Dairy and Food Commissioner of this State, in case he shall find that cattle are kept in violation of the provisions of this act, to cause all such cattle, having any contagious or infectious disease, to be killed.

SEC. 3. Any person violating the provisions of this act shall be guilty of a misdemeanor.

SEC. 4. This act shall take effect upon approval.

RULES AND REGULATIONS.

Rules and Regulations of State Board of Health relating to diseased animals, adopted April 20, 1898.

No animals driven or shipped from infected districts, within the quarantine line defined by the United States Department of Agriculture, shall enter the State of Utah unless they shall first have been inspected at the points designated by the State Board of Health by an inspector of the State of Utah and found to be free from any contagious or infectious disease or fever ticks: *Provided*, That cattle may be shipped through the State, on condition that if found to be infected with splenetic, or Texas, fever, they must be placed in quarantine pens when unloaded for feeding and watering.

Inspectors having inspected animals from the quarantine district prescribed, and having found the said animals free from all contagious or infectious diseases and fever ticks, shall issue a certificate of health.

All cattle offered for shipment without a certificate of health from the said inspector, shall be regarded as infected and must follow the rules and regulations hereinbefore stated.

The expense of inspection as herein provided shall be defrayed by the owner or owners of the animals inspected.

VERMONT.

In Vermont it is a violation of law to bring domestic animals into the State which are known to be infected with or having been exposed to any contagious or infectious disease. The penalty for this offense is not more than $500 or less than $100.

The selectmen of towns and aldermen may make regulations to prevent the spread of such diseases, and shall report all such cases to the Governor.

The Board of Agriculture may prohibit the importation into the State of animals believed to be affected with or exposed to any contagious or infectious disease, or may quarantine the same for such a period of time as may be deemed necessary. It is also the duty of the board to obtain as full information as possible regarding any contagious or infectious disease which may prevail near the borders of the State and publish such information. Should any such disease break out in any town in this State, the board is required to examine into the matter and publish the results of their examination for the benefit of the public.

The Board of Agriculture may quarantine all animals affected with tuberculosis, as well as those that have been exposed to that disease, and may make such investigations and "regulations as they deem necessary for the detection, prevention, treatment, cure, and extirpation of such disease, but shall not apply the tuberculin test without the consent of the owner of the cattle." The tuberculin test is required, however, in the case of cattle imported into the State.

The Board of Agriculture may condemn and order killed any cattle which they believe to be affected with tuberculosis, and may prohibit the sale or removal from the premises of any dairy product from cows so affected.

Animals killed by order of the board are appraised by disinterested persons, said appraisement to be upon the basis of health. The limit of value in such cases is $40. If upon postmortem an animal is found to be affected, the owner receives one-half the appraised value; if not affected, the full appraisement. The State pays the indemnity. Indemnity does not extend to animals which have not been owned and kept within the State for a period of six months immediately prior to being killed.

The rules and regulations issued by the Board of Agriculture always supersede those issued by selectmen or aldermen.

LAW.

(STATUTES OF 1894.)

SEC. 4807. If a person brings into this State any domestic animals which he knows to be infected with an infectious or contagious disease, or exposes such cattle or other animals known to him to be so infected to other cattle and animals not infected with such disease, he shall be fined not more than $500 and not less than $100.

SEC. 4808. The selectmen of the towns, and the board of aldermen of the cities of this State, may make and enforce such regulations as they deem proper to prevent the spread of infectious or contagious diseases among domestic animals within their respective towns and cities, and shall inquire into all such cases coming to their knowledge, and shall immediately report the same to the Governor. A person who knowingly violates or refuses to obey such regulations made by such town or city authorities shall be fined $100.

SEC. 4809. The Board of Agriculture may prohibit the introduction of horses or other domestic animals believed to be infected with or exposed to any contagious disease, into this State, or may quarantine all such animals for such time as the public good requires; but shall not prohibit the transportation of the same in cars through this State.

SEC. 4810. If a person violates such order, after the same has been published three successive days in such newspapers published in this State as the board directs, he shall be fined not more than $300 for each offense, and every officer or agent of any company, or other person who violates such order, shall be fined as aforesaid. The introduction into this State at the same time of a number of horses, cattle, or other domestic animals, contrary to the orders of such board, shall be deemed a separate and distinct offense for each animal.

SEC. 4811. The board shall endeavor to obtain full information in relation to any contagious disease which may prevail among domestic animals near the borders of the State, and publish and circulate such information at their discretion; and should any such disease break out, or should there be reasonable suspicion of its existence among cattle or other domestic animals in any town in this State, they shall examine the cases and publish the results of their examination for the benefit of the public. The board is also authorized to examine, under oath, in the several towns and cities in this State, all persons possessing or believed to possess knowledge of any material facts concerning the existence or dissemination or danger of dissemination of diseases among domestic animals, and for this purpose shall have all the power now conferred upon justices of the peace to compel witnesses to attend and testify.

SEC. 4812. All costs and expenses incurred in procuring the attendance of such witnesses shall be allowed by the State Auditor, upon the approval of the Governor, and be paid by the State.

SEC. 4813. When bovine tuberculosis or any contagious disease exists in the State among cattle or other domestic animals, the Board of Agriculture may quarantine all infected animals or such as they suppose have been exposed to the contagion, may prohibit any animal from passing on or over any of the highways near the place of quarantine, may enter upon any premises where there are animals suspected to have bovine tuberculosis or any contagious disease, may employ such expert help and means as they deem necessary to a thorough investigation of such diseases, may make all investigations and regulations they deem necessary for the detection, prevention, treatment, cure, and extirpation of such disease, but shall not apply the tuberculin test without the consent of the owner of the cattle, but in quarantine regulations against cattle imported from without the State the tuberculin test may be applied, and they may condemn and order killed any cattle or other domestic animals believed by said board to be infected with bovine tuberculosis or any contagious disease, and may order the bodies of the same buried or burned, as in their judgment the case may require; may forbid the sale or removal from the premises of any dairy product from cows that are believed to have bovine tuberculosis. Any person who shall knowingly violate or refuse to comply with any order or regulation of such board, made under the authority of this section, shall be fined not more than $200, or be imprisoned not more than two years, or both.

SEC. 4814. If any person shall sell or offer to sell any cattle or other domestic animal known to him to be infected with bovine tuberculosis or any contagious disease, or any disease dangerous to the public health, or shall sell or offer to sell any part or parts of such cattle or other domestic animal, he shall be fined not more than $200, or be imprisoned not more than two years, or both.

SEC. 4815. The value of all cattle or other domestic animals killed by the written order of the Board of Agriculture shall be appraised by one of said board and a disinterested person selected by the owner of the condemned animals; but if these two can not agree upon the amount of the appraised value of the animal, they shall select a third disinterested person, who, together with them, shall appraise the animal, such appraisal to be made just before killing, and on a basis of health. The limit of the appraisal of cattle shall be $40. A postmortem examination shall be made, and if the animal be found affected with bovine tuberculosis or any disease dangerous to the public health, the owner of the animal shall receive one-half the appraised value; but if no bovine tuberculosis or disease dangerous to the public health be found, the owner of the animal shall receive the full amount of the appraisal, and in addition shall receive the slaughtered animal. The amount which the owner is entitled to receive shall be paid by the State to the owner of such animal or animals upon a written order, signed by the member of the board in charge and countersigned by the secretary of said board. No indemnity shall be paid to the owner of condemned cattle or other domestic animals that have not been owned and kept in the State for at least six months previous to the discovery of the disease. Any person who shall knowingly violate or refuse to comply with any regulations made by such Board of Agriculture under the authority and provisions of this section shall be fined not more than $200, or imprisoned not more than two years, or both.

SEC. 4816. All expenses incurred by the board under the provisions of the three preceding sections shall be allowed by the State Auditor, upon the approval of the Governor, and paid by the State.

SEC. 4817. Whenever the board shall make and publish regulations concerning the extirpation, cure, or treatment of domestic animals infected with, or which have been exposed to, any contagious disease, such regulations shall supersede the regulations made by the selectmen of the several towns, or the board of aldermen of the several cities, upon the same subject: and the operation of such regulations made by said authorities shall be suspended during the time those made by the board as aforesaid are in force.

SEC. 4818. The board shall keep a record of its doings and report the same to the Governor prior to the fifteenth day of September, annually, unless sooner required.

SEC. 4819. All orders, appointments, and notices from the board shall be signed by a majority of the same.

SEC. 4820. [As amended by act of November 7, 1896.] Every prosecution for a violation of any of the provisions of this chapter shall be commenced within six months from the commission thereof.

Below are copied the regulations issued by the Board of Agriculture; also some quotations from the report of Mr. C. J. Bell, Secretary of the Board of Agriculture for the year ended July 1, 1900:

REGULATIONS.

INSPECTION.

I. Owners of cattle in the State may have their herds tested with tuberculin at State expense by applying to the board. Owners of herds, tested by the State, will not be allowed to admit cattle into their herds unless such cattle have been tested or have come from herds tested by the State.

II. All cattle that are judged tuberculous on tests made by the State must be killed and the bodies buried or burned. Owners of herds are required to bear the expense of killing and disposing of the bodies. The hides of the cattle killed will be at the disposal of the owners.

III. Applications for tests will be complied with as far as practicable in the order received. Exceptions to this rule are sometimes made for the purpose of testing herds suspected of being tuberculous and for completing tests in a given locality.

IV. Applications to test a portion of a herd only will always be refused.

V. The board claims the right to retest herds in which disease is found whenever they think best. A second test will not be made in herds where no disease or suspicious cases are found on the first test.

VI. No indemnity will be allowed for cattle killed by their owners and found diseased where no inspection has been made by the board.

VII. Persons having herds tested, from which diseased animals are killed, will be required to observe the rules and directions of the board in disinfecting their premises.

DISINFECTION OF STABLES.

Things required.—Brooms, pails, hoe, barrel, spray pumps, and a half pound of the following mixture for each five stalls: Corrosive sublimate, ammonium chloride, equal parts, well mixed.

Directions.—Remove all live stock, and after sprinkling to lay the dust sweep all dust and dirt from mangers, walls, and floor, scraping loose gummy material clinging to mangers and stanchions with hoe. Mix well one package of disinfecting powder and thirty gallons of water; then dip out in pail and with broom scrub mangers and stanchions; then with spray pump thoroughly drench ceiling, side walls, floor, etc., using at least a barrel of solution to each five stalls.

Caution.—This solution is poison, so do not leave pools of it in mangers.

QUARANTINE.

I. Under the quarantine regulations now in force, no cattle are allowed to enter Vermont from any source, to be held in the State, without a permit from the board. Any common carrier who leaves an animal in the State without being accompanied by such permit, or any person who brings an animal into the State without such permit, is liable to a fine not exceeding $200.

II. Permits will be issued to persons to bring cattle into the State after such cattle have passed an examination with tuberculin that is satisfactory to the board. Such cattle will be held in quarantine at some place designated by the board until identified and released.

Permits will also be given to persons to bring cattle into the State, and the same shall be held at such place as is designated by the board under quarantine restrictions until tested with tuberculin by some person approved by the board and judged to be free from tuberculosis.

III. All expenses incurred in identifying, releasing, and testing cattle under the preceding rule must be paid by the owner of the cattle.

IV. Applications for permits to bring cattle into the State should be made to the secretary of the board.

Adopted December 16, 1898.

C. J. Bell, *Secretary.*

East Hardwick, Vt., *January 2, 1899.*

THE SECRETARY'S REPORT.

It has seemed hard to some buyers of cattle, and especially to farmers living on the borders of the State, to be obliged to comply with these regulations.

To show the necessity of this I will state only one case. A man from another State, knowing our rules, led a suspicious cow to the State line in the night, a Vermont party being there to purchase. This cow, in three months, changed owners four or five times, but fortunately was kept by herself with the exception of a few days, when she was in one herd, where, upon a test three months later, four were killed that no doubt contracted the disease while this cow was in the stable, and the injury done cost the State over $50.

The commission have realized the necessity of a strict quarantine, and have required a permit to enter cattle into the State, and upon arrival, unless a satisfactory test previously made, the cattle to be tested by a veterinary acceptable to the commission before the animals were released from quarantine.

Some who have thought best to disregard this rule and have brought in one or more head without either the permit or test have been looked up by the commission and asked to pay a small fine, which has been turned over to the State treasury. This the commission have done, believing it to be the best way for some individuals to remember the laws of the State. All cases coming to our knowledge have been looked after and our rules enforced. By this method many head of cattle that would have done injury to our herds have been kept out.

All the New England States except Connecticut have quarantine regulations; some as strict, but none more so than Vermont.

Several of the Middle and Western States have within the year made and are enforcing strict quarantine regulations of cattle brought to them from New England and New York.

Several complaints have come to the commission from the selectmen of a town, director of a creamery, or from some individuals, when we have felt it our duty to look into the matter, and the commission have in all cases prevailed upon the owner to have the questionable herd tested, and in nearly all cases found the disease, sometimes to an alarming extent.

The commission arranged with the owner of one large herd to have the tuberculin test applied. The owner, perhaps knowing the disease to be there to a considerable extent, although working in every way to rid his herd of the disease, except to have the tuberculin test used, had in the past four years labored in vain, for seventy-eight of the ninety-two head were slaughtered and found diseased. Upon a retest six more were taken, leaving only eight of the herd.

These cattle were kept in a light and well-ventilated stable, and with but a very few exceptions to the inexperienced eye would be considered healthy. They were in fine condition, many of them good beef, yet, upon slaughtering, four-fifths of them were diseased all through.

The commission were informed after the slaughter that the owner had in the past four years quietly buried nearly as many as were killed, in order to keep his herd looking healthy.

Another herd, into which many cattle were imported from time to time, the commission persuaded the owner to have tested. This herd numbered considerably over one hundred head. Among the young cattle we found only one to condemn. The cows were nearly three-fourths diseased. The commission arranged with the owners to quarantine the herd and sell the product out of the State—to the same parties to whom it had been sold for several years—killing many of the most pronounced cases. Some have been slaughtered on a second visit, and the work will be continued until all the diseased ones are stamped out, which will be before many months.

Meanwhile these cows are on a farm by themselves away from all healthy cattle. This arrangement was made by the commission upon condition that the State pay no indemnity for slaughtered cattle.

Many instances could be cited where the cattle owner thought to do better than to use the tuberculin test, but in every case, sooner or later, the fates are against him, and in some quiet spot on the farm the graves can be counted in numbers which shows the herd did not increase even by raising all the calves. The income of the average farmer will not long allow him to continue the business of dairying unless he avails himself of the privileges the State offers him.

The per cent of diseased cattle is greater this year than former years. This is occasioned by testing only where there was a suspicion of disease and more particularly mentioned herds.

The tuberculin test may be relied upon only in experienced hands. Some badly diseased animals will not show a reaction by the injection of so small an amount of tuberculin, but the experienced eye will almost always detect other symptoms after the injection.

The commission require the veterinarians that are employed by the State to inform them of any private tests made that the sale of diseased cattle may be hindered.

Where a test of this kind had been made, eighteen head showed a reaction. The owners were called upon by the commission who offered to take them and slaughter in behalf of the State, but were declined, the owners themselves preferring to dispose of them. After several weeks of delay the cattle were driven to an adjoining town, said to have been sold and were going out of the State. The commission quarantined them and slaughtered without paying any indemnity.

Permits to bring cattle in to pasture without a test and usually without examination have been given to parties in New York, New Hampshire, and on the borders of Massachusetts. But cows coming from the market in Massachusetts for pasture, a test has been required this year, for last season upon test of one carload twelve were returned. Two cows that were slaughtered out of one herd last January were found to have been purchased of a Massachusetts man who had cattle here to pasture last season. The commission did not find the man, but a relative was found in Vermont who saw fit to pay one-half the appraised value of the cows, which was paid over to the owner of the herd.

More than one thousand head came in to pasture and will be returned at the close of the pasture season. Permits other than pasture permits have been issued for nearly seventeen hundred head to come into the State. All these have been tested except young calves, and these were required to come, as much as possible, from healthy herds.

In the opinion of the commission Vermont is gaining in reputation as a State for healthy cattle, and in many of the towns where all the cattle have been raised tuberculosis does not exist, unless brought in by the purchase of some improved stock.

Some of the larger towns and cities would do well to require of the milkmen that their herds be tested, for there are some localities in Vermont where there is reason to believe tuberculosis exists to some extent. There are some towns that could be named where cattle buyers cease to go to purchase cattle after the first visit.

The belief of some that no disease exists among cattle and by others who possibly may have suspicion, but do not wish to know the fact, aids very much in keeping cattle in circulation in different parts of the State, and does not lessen the distribution of the germs of disease.

VIRGINIA.

Virginia has a law for the control of infectious and contagious diseases of live stock, the fourteenth section of which specifies that "tuberculosis shall be classed as a highly contagious and infectious disease." The duty of administering this law is placed with the Board of Control of the Agricultural and Mechanical College, who are "authorized and empowered to establish, maintain, and enforce such quarantine lines and sanitary rules and regulations as they may deem necessary." This board may also cooperate with like officers of other States and the Bureau of Animal Industry in the work against such diseases.

The veterinarian of the Experiment Station, by direction of the board, makes careful examination of animals believed to be affected with any contagious or infectious disease; and, if found to exist, the board establishes such quarantine lines as may be necessary to prevent the spread of any such disease, and to prescribe proper rules and regulations. When this is done, the facts are reported to the Governor, who issues a proclamation making permanent the temporary quarantine and the rules and regulations adopted.

Whenever in the opinion of the board an infectious or contagious disease exists among the live stock of other States or Territories, they shall report the fact to the Governor, who issues a proclamation prohibiting the importation of live stock of the kind diseased into the State, unless accompanied by a certificate of health.

Transportation companies shall not knowingly violate any of the provisions of the act or of the rules and regulations.

It is made the duty of owners or agents to report to the county board of supervisors any animals which they may discover or have reason to believe are affected with any contagious or infectious disease. The supervisors cause an investigation to be made, and, if they have reason to believe that an animal is so affected, establish a temporary qnarantine until the Board of Control takes charge of the matter.

No one having an animal so diseased, knowing it to be so, shall permit it to run at large or allow it to come in contact with animals not diseased, or shall ship, drive, sell, or give it away.

The general penalty for violation of any of the provisions of this act or of any of the rules and regulations of the Board of Control is a sum not less than $10 nor more than $100.

LAW.

AN ACT to provide for the protection of domestic animals, and to authorize and empower the Board of Control of the Experiment Station of the Virginia Agricultural and Mechanical College at Blacksburg to establish live-stock quarantine lines, rules, and regulations, and to prescribe penalties for violating the same.

1. *Be it enacted by the General Assembly of Virginia*, That it shall be the duty of the Board of Control of the Experiment Station of the Virginia Agricultural and Mechanical College at Blacksburg to protect the domestic animals of this State from all contagious or infectious diseases of a malignant character, whether said diseases exist in the State or elsewhere, and for this purpose they are hereby authorized and empowered to establish. maintain, and enforce such quarantine lines and sanitary rules and regulations as they may deem necessary. It shall also be the duty of said board to cooperate with live-stock quarantine commissioners and officers of other States and Territories, and with the United States Secretary of Agriculture, in establishing such interstate quarantine lines, rules, and regulations as shall best protect the live-stock industry of this State against Texas, or splenetic, fever. It shall be the duty of said board, upon receipt of reliable information of the existence among the domestic animals of the State of any malignant disease, to cause the veterinarian employed at said Experiment Station to go at once to the place where any such disease is alleged to exist and make a careful examination of the animals believed to be affected with any such disease, and ascertain, if possible, what, if any, disease exists among the live stock reported to be affected, and whether the same is contagious or infectious; and if said disease is found to be of a malignant, contagious, or infectious character they shall direct and enforce such quarantine lines and sanitary regulations as are necessary to prevent the spread of any such disease. And no domestic animal infected with disease, or capable of communicating the same, shall be permitted to enter or leave the district, premises, or grounds so quarantined except by authority of the said board or its veterinarian. The said board shall also from time to time give and enforce such directions and prescribe such rules and regulations as to separating, feeding, and caring for such diseased and exposed animals as they shall deem necessary to prevent the animals so affected with such disease, or capable of communicating disease, from coming in contact with other animals not so affected. And the said board and its veterinarian are hereby authorized and empowered to enter upon any grounds or premises to carry out the provisions of this act.

2. When the said board shall have determined the quarantine lines and other regulations necessary to prevent the spread among domestic animals of this State of any malignant, contagious, or infectious disease found to exist among the live stock of this State or elsewhere, and given their orders as hereinbefore provided, prescribing quarantine and other regulations, they shall notify the Governor of

the State, who shall issue his proclamation, proclaiming the boundary of such quarantine around such diseased stock, and the orders, rules, and regulations prescribed by the board; and said board shall give such notice as to it may seem best to make the quarantine established by them effective.

3. The said board shall have power to carry into full effect all orders by them given, as hereinbefore provided, and the expense incurred by it shall be paid out of the Treasury of the State on warrants drawn by the chairman of said board: *Provided*, That no expense shall be incurred except such as may be necessary to carry into effect the necessary quarantine and other regulations prescribed by said board. And said board shall have the power to direct the veterinarian employed at said experiment station to assist it in the investigation of the diseases amongst the live stock of this State whenever they may deem his services necessary: *Provided*, That no compensation shall be paid said veterinarian other than his actual expenses while engaged in such duties.

4. When the said board shall have good reason to believe that the health of the live stock of the State is endangered by the existence of contagious and infectious diseases in certain localities in other States, Territories, or counties, or that there are conditions which render such domestic animals from such infected districts liable to convey such disease, they shall notify the Governor, who shall by proclamation prohibit the importation of any live stock of the kind diseased into the State, unless accompanied by a certificate of health given by a properly authorized veterinarian, and all such animals arriving in this State shall be examined immediately by a veterinarian designated by the board, and if in his opinion there is any danger from contagion or infection, they shall be placed in close quarantine at the expense of the owner until such danger of infection or contagion is passed, when they shall be released by order of the said veterinarian.

5. It shall be the duty of the railway corporations doing business in the State to cleanse and disinfect the cars used by them in transporting live stock in or through this State at such times and places, and in such manner as the board may designate, whenever, in the opinion of the board, any such order may be necessary to prevent the spread of infectious or contagious disease. Any such corporation violating the provisions of this section shall be liable to a penalty of $500 for each offense, to be recovered in a civil action to be prosecuted under the direction of the Attorney-General in the name of the Commonwealth of Virginia.

6. Any railroad company, navigation company, or other corporation or common carrier who shall knowingly or wilfully violate, disregard, or evade any of the rules or directions of the board or veterinarian, establishing or governing quarantine, or who shall evade or attempt to evade, any quarantine proclamation of the Governor of this State declaring quarantine limits, upon conviction thereof shall be fined not less than $500 nor more than $5,000 for each and every offense, and shall be liable for all damages caused to any live stock by its failure to comply with the requirements of this act.

7. It shall be the duty of any owner or person in charge of any domestic animal or animals who discovers, suspects, or has reason to believe that any of his domestic animals or domestic animals in his charge are affected with any contagious or infectious disease to immediately report such fact, belief, or suspicion to the said board and to the chairman of the board of supervisors of the county in which said domestic animals are found.

8. The board of supervisors of each county, whenever any cases of contagious or infectious diseases are reported to them in their county, shall immediately investigate the same. The investigation may be made by the board or any member thereof, or by the employment of a qualified veterinarian; and should such investigation show a reasonable probability that a domestic animal is affected with a contagious or infectious disease, the supervisors shall immediately establish such temporary quarantine as may be necessary to prevent the spread of the disease,

and report all action taken to the Board of Control of the Experiment Station of the Virginia Agricultural and Mechanical College and Polytechnic Institute at Blacksburg, or some member thereof; and the acts of the supervisors establishing temporary quarantine shall have the same force and effect as though established by the Board of Control itself, until such time as the said Board of Control shall take charge of the case or cases. And that the board of supervisors of each county be hereby authorized and empowered to quarantine against any other county in the State of Virginia on account of Texas, or splentic, fever or parasites, which may convey said disease, under the supervision of the Board of Control of the Virginia Agricultural Experiment Station, or its veterinarian. Before establishing such county quarantine the board of supervisors shall advise with the Board of Control or its veterinarian, and the county quarantine established by the board of supervisors shall conform to the rules and regulations which may be prescribed by the Board of Control or its veterinarian. It shall be the duty of the board of supervisors to rigidly enforce any such quarantine established in their county, and all expenses incurred by said supervisors in carrying out such quarantine shall be paid in like manner as other expenses incurred by said supervisors in the discharge of their official duties. The quarantine established against other infected counties may be so established without proclamation by the Governor.

9. Any person who shall knowingly bring into this State any domestic animal which is infected with any contagious or infectious disease, or any animal which has been exposed to any contagious or infectious disease, or which bears upon its body fever ticks or other germs or causes of disease, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $100 nor more than $500.

10. Any person who owns or is in possession of live stock which is reported to be affected with any contagious or infectious disease, or insects which may produce disease, who shall refuse to allow said board, or anyone acting under its order, to examine such stock, or shall hinder or obstruct the said board or appointee in any examination of or any attempt to examine such stock, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $100 nor more than $500.

11. Any person who shall have in his possession any domestic animal infected with any contagious or infectious disease or fever ticks, knowing such animals to be affected, who shall permit such animal to run at large, or who shall keep such animal where other domestic animals not affected by or previously exposed to such disease may be exposed to its infection or contagion, or who shall ship, drive, sell, trade, or give away such diseased animal or animals which have been exposed to such infection or contagion, or who shall move or drive any domestic animal in violation of any direction, rule, regulation, or order of the Board of Control, establishing and regulating live stock quarantine, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more than $100 for each of such exposed or diseased domestic animals which he shall permit to run at large or sell, ship, drive, trade, or give away in violation of the provisions of this act: *Provided*, That any owner of domestic animals which have been affected with or exposed to any contagious or infectious disease may dispose of the same after having obtained from the said board or veterinary surgeon a bill of health for such animal or animals.

12. The said board shall have power to call upon any sheriff or deputy sheriff or constable to execute their orders, and such officer shall obey the orders of said board, and the officer or officers performing these duties shall each be entitled to $1.50 per day for himself and horse, which payment shall be made upon a sworn account, approved by said board, provided said expenses under this section shall not exceed in any event $500 per annum.

13. Except as otherwise provided in this act, any person who shall violate, disregard, or evade or attempt to violate, disregard, or evade any of its provisions, or who shall violate, disregard, or evade or attempt to violate, disregard, or evade any of the rules, regulations, orders, or directions of the said board establishing and governing quarantine, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $10 nor more than $100.

14. *Be it further enacted*, That the disease known as tuberculosis shall be classed as a highly contagious and infectious disease, and such measures shall be taken by the board and its authorized veterinarian as to them may seem necessary to eradicate and prevent the spread of said disease.

15. This act shall be in force from its passage.

WASHINGTON.

The enforcement of the laws of Washington against contagious and infectious diseases is in the hands of the State Veterinarian, who is appointed by the regents of the State Agricultural College. This veterinarian has supervision of all cases of contagious or infectious diseases of animals within the State or which may be in transit through it; he may also quarantine diseased or exposed animals, and, with the concurrence of the State Board of Health, of which he is a member ex officio, make rules and regulations to prevent the spread or suppression of contagious or infectious diseases.

The veterinarian is directed to respond to any call by any local board of health, county commissioners, or city council, or appoint a substitute.

Whenever in the judgment of the veterinarian any stock is affected with a contagious or infectious disease, and the owner of the same will not consent to their destruction, he shall notify the Governor, who appoints an arbitration board.

The Governor and State Veterinarian are authorized to cooperate with the Bureau of Animal Industry for the purposes of the act.

LAW.

AN ACT providing for the creation of the office of the State Veterinary Surgeon and defining his duties. (Approved March 22, 1895.)

Be it enacted by the Legislature of the State of Washington:

SECTION 1. There shall be and hereby is created the office of State Veterinarian, which office shall be vested in the professor of veterinary science of the Agricultural College and Experiment Station, who shall be chosen in the same manner as other members of the faculty and station staff of said college and station, and shall serve as State Veterinarian without compensation in addition to the salary paid by the college and experiment station. The Veterinary Surgeon shall be a graduate of some regular and established veterinary college and shall be skilled in veterinary science. He shall be a member of the State Board of Health, which membership shall be in addition to that now provided for by law. He shall be under the direction of the president of the State Agricultural College and director of the Experiment Station and School of Science, and perform such duties as the board of regents may prescribe. When actually engaged in the discharge of his official duties outside the said college and experiment station he shall receive, in addition to his salary, actual transportation expenses, which shall be presented to the president of the college under oath and covered with written vouchers before receiving the same. He shall receive as salary such compensation as the regents of the State Agricultural College may determine.

SEC. 2. He shall have general supervision of all contagious and infectious diseases among the domestic animals within or that may be in transit through the State, and he is empowered to establish quarantine against animals thus diseased or that have been exposed to others thus diseased, whether within or without the State, and may, with the concurrence of the State Board of Health, make rules and regulations such as he may deem necessary for the preservation against the spread and for the suppression of said disease or diseases, which rules and regulations, after the concurrence of the Governor, shall be published and enforced; and in doing said things he shall have the power to call on any one or more peace officers, whose duty it shall be to give all assistance in their power.

SEC. 3. Any person who wilfully hinders, obstructs, or resists said Veterinary Surgeon or his assistants, or any peace officer acting under him or them when engaged in the duties or exercising the powers herein conferred shall be guilty of a misdemeanor, and punished accordingly.

SEC. 4. Whenever a majority of any board of health, county commissioners, city council, trustees of incorporated towns or townships, whether in session or not, shall, in writing or by telegraph, notify the State Veterinary Surgeon of the prevalence of or probable danger from any of said diseases, he shall at once repair to the place designated in said notice and take such action as the exigencies may demand, and he may in case of emergencies appoint substitutes or assistants, with equal powers, whose compensation shall be $5 per day and actual traveling expenses.

SEC. 5. Whenever in the opinion of the State Veterinary Surgeon the public demands the destruction of any such stock under the provisions of this act, he shall, unless the owner or owners of such stock consent to such destruction, notify the Governor, unless in his judgment immediate action is necessary. The Governor may appoint one or more competent veterinary surgeons to act in conjunction with the State Veterinary Surgeon, and no stock shall be destroyed except on the written order by the State Veterinary Surgeon. The Governor of the State with the State Veterinary Surgeon may cooperate with the Government of the United States for the objects of this act, and the Governor is hereby authorized to receive and receipt for any money receivable by this State through provisions of any act of Congress which may at any time be in force upon this subject, and to pay the same into the State treasury, to be used according to the act of Congress and the provisions of this act.

REGULATIONS.

Regulations for controlling contagious diseases in animals in the State of Washington, under the provisions of Section 2, Chapter 167, of the Session Laws of 1895:

1. All cattle brought into this State must have been, within three months prior to their importation, submitted to the tuberculin test, from which no reaction occurred, which shall be certified to by a competent veterinarian.
2. [Refers to the dipping of sheep.]
3. [Refers to importation of pigs.]

S. B. NELSON,
State Veterinarian.

Concurred in by the State Board of Health:

J. B. EAGLESON, *President.*
G. S. ARMSTRONG, *Secretary.*

Approved:

J. H. MCGRAW, *Governor.*

WEST VIRGINIA.

West Virginia has no specific laws relative to tuberculosis; legislation bearing indirectly upon the subject is embodied in the act concerning contagious diseases among domestic animals, which is published below.

This law places the duty of its enforcement upon the President of the State Board of Agriculture, who is empowered to quarantine animals, buildings, and farms, and to prevent the movement of objects likely to convey disease; also, with the approval of the State Board of Agriculture, to make rules and regulations for the government of the quarantine. Violations of the provisions of the quarantine are punishable by imprisonment not exceeding three months, or by fine not exceeding $100, or by both fine and imprisonment.

Animals may be killed to prevent the spread of disease, after appraisement by three disinterested persons, who shall take into consideration the condition of the animals at the time when the appraisement is made, and the owner of animals so destroyed shall receive from the Secretary of the State Board of Agriculture a certificate of value in accordance with the appraisement, subject to the approval of the board. The holders of such certificates are paid their value at the end of the year, provided the total amount does not exceed $3,000, "which amount shall be paid pro rata at the end of each fiscal year on order signed by the President and Secretary of the State Board of Agriculture."

LAW.

AN ACT to prevent the spread of contagious diseases among domestic animals. (Passed February 24, 1899. In effect ninety days after passage.)

Be it enacted by the Legislature of West Virginia:

That Chapter 9 of the Acts of 1897 be amended and reenacted, with additional sections thereto, so as to read as follows:

SECTION 1. That when it shall be brought to the notice of the President of the State Board of Agriculture that any contagious or infectious disease, not otherwise provided for by law, prevails among domestic animals, he shall take such measures to prevent its spread as may be deemed expedient, and for this purpose shall have power to place infected animals, herds, buildings, and farms in quarantine and to prevent the movement of animals or objects likely to convey the contagion, except under proper permits, and, with the consent and approval of said board, to make such rules and regulations for the government of such quarantine as may be deemed necessary to effectively carry out the provisions of this act.

SEC. 2. That any person or persons who shall willfully or intentionally interfere with any officer or officers duly authorized to carry out the provisions of this act, or who shall willfully or intentionally violate the provisions of the quarantine authorized by Section 1 of this act, shall be deemed guilty of a misdemeanor, and upon conviction shall be liable to an imprisonment not exceeding three months, or a fine not exceeding $100, or both, at the discretion of the court.

SEC. 3. That when, in the judgment of the President of the Board, public interest and safety demand it, he may give written authority to any consulting veterinarian of the board, who shall be a graduate of some reputable veterinary college, or he may go in person, taking such veterinarian with him, to examine any animal or animals or any buildings or farms suspected, and the decision of such veterinarian, or the President of the Board and veterinarian acting together, after proper examination, and under the provisions of this act, and such rules and regulations as the board may prescribe, shall be final, and the veterinarian or the President of the Board and the veterinarian acting together shall proceed to quarantine, to destroy, to order burned or buried, or to take any other action authorized by this act and the rules of the said board.

It is hereby made the duty of the veterinarian having charge of any case, or the President or veterinarian acting together, to make a full and complete report of the same in writing to the Secretary of said board under such rules and in such form as may be by it required.

For such services the President and veterinarian shall each receive a per diem of $4 per day and actual expenses while so engaged, which shall be paid out of current appropriations made for the enforcement of this act and on order signed by the President and Secretary of the board.

SEC. 4. That when it shall be found necessary or expedient to kill any animal or animals to prevent the spread of contagious or infectious diseases, it or they shall first be appraised by three disinterested and sworn appraisers, who shall have due consideration of the actual condition of the animal or animals at the time of appraisement, and the owner or owners of such animal or animals so destroyed shall be entitled to receive from the Secretary of the Board of Agriculture a certificate of value, as appraised by said appraisers, subject to the consent and approval of the said board.

For such services each appraiser shall receive a per diem of $1 per day, to be paid out of current appropriations made for the enforcement of this act, and on order signed by the President and Secretary of the said board.

SEC. 5. That at the end of each fiscal year the holders of such certificates of value issued by the Secretary of said board shall be paid the same from current appropriations made for the purpose: *Provided*, That the amount to be paid on such certificates in any one year shall not exceed the sum of $3,000, which amount shall be paid pro rata at the end of each fiscal year on order signed by the President and Secretary of the State Board of Agriculture.

SEC. 6. That for the economical eradication of contagious or infectious diseases of domestic animals the President of the State Board of Agriculture shall have power, with the consent and approval of said board, to arrange for and carry into effect terms of cooperation with the proper officers of the National Government.

SEC. 7. That all acts or parts of acts inconsistent herewith are hereby repealed.

WISCONSIN.

There is no specific law regarding tuberculosis in Wisconsin; it is treated as one of the "contagious and infectious diseases." The enforcement of laws relative to such diseases appears to be in the hands of a State Veterinarian and the State Board of Health.

Local boards of health shall take cognizance of the existence of contagious and infectious diseases, reporting the same to the State Veterinarian, and order the quarantine of any animal so diseased or exposed to such a disease. The State Veterinarian may also quarantine in like manner. The penalty for violation of the quarantine rules shall be the liability of the offender to all persons injured for the damages sustained and himself forfeit all right to indemnity.

The State Veterinarian may order any animal affected, or suspected of being affected, with any contagious or infectious disease to be slaughtered, after appraisement, in accordance with law. The value of the animal is determined upon its condition at the time the appraisement is made. The amount paid as indemnity by the State is two-thirds of the appraised value, except in cases where it becomes evident that the appraisement is too large. No right to indemnity shall exist in the following cases: (1) For animals owned by the United States, the State of Wisconsin, or any county, city, town, or village in Wisconsin. (2) For animals brought into the State contrary to law or where the owner has failed to comply with the provisions of law. (3) For animals known to be diseased when purchased. (4) For animals known to be diseased at the time of their arrival in the State. (5) For animals which have been exposed wilfully to such diseases or by the negligence of the owner. The slaughtering is done under the direction of the board of health.

The Governor is empowered, upon recommendation of the State Veterinarian, to issue a proclamation prohibiting the entry into the State of any animals affected with contagious or infectious diseases, except under such restrictions as the State Veterinarian may make.

Owners of animals so diseased or their agents are required to report the fact to the local board of health, who reports to the State Veterinarian for his action.

The veterinary laws of Wisconsin, which in general may apply to tuberculosis, are as follows:

LAWS.

SECTION 1492, W. S. 1898. The Governor shall, with the advice and consent of the Senate, appoint a competent veterinary surgeon to the office of State Veterinarian; such appointment shall be made for the term of two years and until the qualification of his successor. The person so appointed shall take an oath of office which shall be filed in the office of the Secretary of State. It shall be the duty of such veterinarian to prevent the introduction or spread of contagious and infectious diseases among domestic animals in this State, to cooperate with the State Board of Health in controlling and suppressing such diseases as are common to men and animals or any diseased condition of animals likely to have a deleterious effect upon the general health of human beings, to make such scientific study, investigations, and experiments as he shall deem necessary in relation to the prevention and cure of diseases among animals and extend information concerning the same.

SEC. 1492*a*, W. S. 1898. The various town, village, and city boards of health shall take cognizance of the existence of contagious and infectious diseases among animals, report all cases thereof coming under their observation in their respective localities to the State Veterinarian and cooperate with him to prevent their spread; any such board or the health officer thereof may order that any animal affected or suspected of being affected with any such disease, or which has been exposed thereto, shall be quarantined, and the removal thereof from any premises where it may be ordered to be kept shall be forbidden. If any such board shall be unable to determine the nature of any disease prevailing among animals, they may request the State Veterinarian to investigate the same. Said veterinarian may quarantine premises upon which is a domestic animal afflicted with a contagious or infectious disease or that is suspected to be so afflicted or that has been exposed to such disease, and forbid the removal of any such animal or any animal susceptible to such disease therefrom by serving a written order upon the occupant or owner of such premises and by posting a copy of such order at the usual entrance thereto; and if any such disease shall become epidemic in any locality he shall immediately notify the Governor, who may thereupon issue a proclamation quarantining such locality and forbidding the removal therefrom of any animal of the kind so diseased or of any kind susceptible to such disease without the written permission of the State Veterinarian. Any person who shall remove or allow the removal, without such permission, of any animal quarantined under the provisions of this section shall be punished as provided by law, be liable to all persons injured thereby for the damages sustained, and forfeit all right to the indemnity which he might be entitled to under Section 1492*b*.

SEC. 1492*b*, W. S. 1898. In case an infectious or contagious disease of a malignant or fatal nature, such as rinderpest, foot-and-mouth disease, pleuropneumonia, anthrax, and Texas fever among bovines, glanders among equines, anthrax in sheep, and other diseases of like nature or fatal tendency shall become or there is good reason to believe that either of them will become prevalent in the community in which any such disease exists, the State Veterinarian may, if in his judgment it shall be necessary, order any diseased animal or animals or any which have been exposed to an infectious or contagious disease to be slaughtered; but if he shall have any doubt concerning the nature of the disease which afflicts any animal or the advisability of slaughtering the same he may call in consultation one or two veterinary surgeons and confer with the State Board of Health, and for the purpose of ascertaining the nature of a disease may order the slaughter of any animal or animals suffering therewith. Whenever such slaughter shall be deemed by him to be necessary the State Veterinarian shall give written notice to the owner, his agent, or the person in whose possession such animal may be, and to a justice of the peace in the county in which the animal may be, of his purpose to order the slaughter thereof, and shall give a description of the animal or animals and state the owner's name if known. Said notice shall be entered upon the docket of such justice, who shall immediately thereafter summon such owner, agent, or possessor and three disinterested citizens of the county, not residents of the immediate neighborhood in which such animal is owned or kept, to appraise the value thereof. Such appraisers shall, before entering upon the discharge of their duty, be sworn by such justice to make a true appraisement, without prejudice or favor, of the value of such animal, and shall certify in their return that they have seen the appraised animal destroyed. In making appraisement of a diseased animal the appraisers shall determine its value in the condition in which it is at that time; but the appraised value of a horse afflicted with glanders shall in no case exceed $50. The slaughter of animals which have been so appraised shall be made under the direction of the local health officer or the chairman of the board.

SEC. 1492*c*, W. S. 1898. Whenever the State Veterinarian shall have reason to believe that there is danger of the introduction into this State of any contagious or infectious disease prevailing among domestic animals in any locality without the State, he shall immediately investigate the conditions there existing with reference to such danger, and if he concludes that such danger exists shall forthwith so report in writing to the Governor and recommend the adoption of such measures as he may deem necessary; the Governor may thereupon, by proclamation, designate the locality or localities from which danger is apprehended and prohibit the importation therefrom into this State of any animals of the kind diseased, except under such restrictions as the State Veterinarian may make. It shall be the duty of every person who shall have reason to suspect that there is upon his premises, or upon premises over which he has control, whether as agent or otherwise, any domestic animal afflicted with a contagious or infectious disease to immediately report the fact to the local board of health or some member thereof, and such board or member shall forthwith make report thereof to the State Veterinarian. That officer may enter upon any premises or go into any building or place where he has reason to suspect there may be diseased animals, and may call to his aid, whenever necessary, the sheriff or any constable of the county in which such animals may be, and all such officers when so called upon shall assist the State Veterinarian in the enforcement of the provisions of this and the three preceding sections. All domestic animals in this State, whether here permanently or in transit, are within such sections and the two next following.

SEC. 1492*d*, W. S. 1898. All claims against the State arising from the slaughter of animals as above provided shall be made by filing with the Secretary of State a copy of the State Veterinarian's notice to the justice of the peace and the return of the appraisers to the justice, which notice and return shall be certified by him. The Secretary of State shall examine these, and if satisfied that the amount awarded is just and that the owner of the animals slaughtered is entitled to indemnity, shall issue his warrant for two-thirds of the sum named in such return; but if he shall have reason to believe that the appraised value is greater than the real value of such animals he shall pay such owner such less sum as he shall deem just: *Provided* That the right to indemnity shall not exist nor shall payment be made in either of the following cases:

1. For animals owned by the United States, this State, or any county, city, town, or village in this State.
2. For animals brought into this State contrary to the provisions of Section 1491 or of the preceding section, or where the owner of the animal or the person claiming compensation has failed to comply with the provisions of Section 1492 *b* or of the preceding section.
3. When the owner or claimant, at the time of coming into possession of the animal, knew it to be afflicted with a contagious or infectious disease.
4. When the animal slaughtered was diseased at the time of its arrival in this State.
5. When the owner shall have been guilty of negligence or has wilfully exposed such animal to the influence of a contagious or infectious disease.

WYOMING.

Wyoming has no special law relating to bovine tuberculosis. The disease may be dealt with as one of the "cases of contagious or infectious disease among domestic animals." Chapter 10 of the Revised Statutes (1899) embodies the provisions of laws relative to this class of diseases.

It is the duty of the State Veterinarian to investigate all cases of contagious or infectious diseases that may come to his knowledge; to inspect animals coming into the State if they warrant the presumption that they are to remain in the State.

The State Veterinarian has authority to quarantine infected premises. If a disease becomes epidemic the Governor shall issue a proclamation forbidding animals so diseased from being moved without a certificate from the State Veterinarian showing that they are healthy.

The State Veterinarian may slaughter diseased animals, or animals exposed to disease, provided that before slaughtering an animal that has been exposed to disease the State Veterinarian shall call in consultation two other veterinarians or physicians and shall have their written indorsement that such action is necessary, and also the written consent of the owner of the animal.

Before any animal is slaughtered it is appraised by three disinterested stock owners, who shall certify to the owner the value decided upon. These claims, when approved by the State Veterinarian, are paid by the State Auditor. The amount of the indemnity is two-thirds of the ordinary value of the animal as determined by the appraisers. The right to indemnity is limited to animals having certain kinds of contagious or infectious diseases, and the total amount of indemnity can not exceed the amount appropriated for the purpose.

LAWS.

[From the Revised Statutes of Wyoming, 1899.]

SEC. 147. The duties of said veterinarian shall be as follows: To investigate any and all cases of contagious or infectious disease among domestic animals in this State of which he may have knowledge or which may be brought to his notice by any resident in the locality where such disease exists. It shall also be his duty, in the absence of specific information, to make visits of inspection to any locality where he may have reason to suspect that there is contagious or infectious disease; to inspect, under the regulations of this chapter, all domestic animals that may arrive at any railroad station in this State, when these animals are such as to warrant the presumption that they are intended to remain in the State and are to be or may be used for breeding purposes therein. It shall be the duty of the owner, or, in his absence, of the person in charge of such animals so arriving, to notify the State Veterinarian without delay and not to allow such animals or any of them to leave the place of arrival until they shall have been examined by the veterinarian and his certificate obtained that all are free from disease. No animal pronounced unsound by the veterinarian shall be turned loose, removed, or permitted to escape, but shall be held subject to the order of the veterinarian. Any person failing to comply with this provision shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than $50 nor more than $500 for each offense.

SEC. 148. In all cases of contagious or infectious disease among domestic animals in this State the veterinarian shall have authority to order the quarantine of the infected premises, and in case such disease shall become epidemic in any locality in this State the veterinarian shall immediately notify the Governor of the State, who shall thereupon issue his proclamation forbidding any animal of the kind among which said epidemic exists to be transferred from said locality without a certificate from the veterinarian showing such animal to be healthy.

SEC. 149. In any case of epidemic disease where premises have been previously quarantined by the State Veterinarian, as before provided, he is further authorized and empowered, when in his judgment necessary, to order the slaughter of any or all diseased animals upon said premises, and of all animals that have been exposed to contagion or infection, under the following restrictions: Said order shall be a written one and shall be made in duplicate, and there shall be a distinct order and duplicate for each owner of the animals condemned, the original of each order to be filed by the veterinarian with the Governor and the duplicate given to said owner. And, further, before slaughtering any animal, or animal that has been exposed only and does not show disease, the veterinarian shall call in consultation with him two respectable practicing veterinarians or physicians, residents of the State, or, if this be impossible, then two reputable and well-known stock owners, residents of the State, and shall have the written endorsement upon his order of at least one of said consulting physicians or stock owners, stating that such action is necessary, and the consent of the owner or person in charge, before such animal or animals shall be slaughtered.

SEC. 150. Whenever, as herein provided, the State Veterinarian shall order the slaughter of one or more animals, he shall, at the time of making such order, notify in writing the nearest justice of the peace, who shall thereupon summon three disinterested citizens—who shall be stock owners—of the neighborhood to act as appraisers of the value of such animals. Said appraisers, before entering upon the discharge of their duties, shall be sworn to make a true and faithful appraisement without prejudice or favor. They shall, after making their appraisement, return certified copies of their valuation, a separate one being made for each owner, together with an accurate description of each animal slaughtered—giving all brands, ear-marks wattles, age, sex, and class, as to whether American, half-breed, or Texas—to the justice of the peace by whom they were summoned, who shall, after entering the same upon his record and making an endorsement upon each, showing it to have been properly recorded, return it, together with the duplicate order of the veterinarian, to the person or persons owning the animals slaughtered, and it shall be the duty of the State Veterinarian to superintend the slaughter of such animals as may be condemned and also the destruction of the carcass, which latter shall be by burning to ashes, and shall include every part of the animal and hide, and also excrement as far as possible. He shall cause the said slaughter and burning to be done as cheaply as practicable, and shall pay the expense from the contingent fund hereinafter provided, taking proper vouchers for the same.

SEC. 151. The State Veterinarian shall make a report at the end of every year to the Governor of all matters connected with his work, and the Governor shall transmit to the several boards of county commissioners such parts of said report as may be of general interest to the breeders of live stock. The Governor shall also give information in writing as rapidly as he obtains it to the various boards of county commissioners of each cause of suspicion or first eruption of disease in each locality, its course, and the measures adopted to check it.

SEC. 152. Whenever the Governor of the State shall have good reason to believe that any disease covered by this chapter has become epidemic in certain localities in another State or Territory, or that conditions exist which render domestic animals liable to convey disease, he shall thereupon, by proclamation, schedule such localities and prohibit the importation from them of any live stock of the kind diseased into this State except under such restrictions as he may deem proper. Any corporation or any person or persons who, after the publishing of such proclamation, shall knowingly receive in charge any such animal or animals from any one of said prohibited districts and transport or convey the same within the limits of this State shall be deemed guilty of a misdemeanor, and upon conviction fined not less than $1,000 nor more than $10,000 for each and every offense, and shall further become liable for any and all damages and loss that may be sustained by any person or persons by reason of the importation or transportion of such prohibited animals.

SEC. 153. It shall be the duty of any person or persons who shall have or suspect that there is upon his or their premises any case of contagious or infectious disease among domestic animals to immediately report the same to the State Veterinarian, and a failure so to do, or any attempt to conceal the existence of such disease, or to wilfully or maliciously obstruct or resist the said veterinarian in the discharge of his duty as hereinbefore set forth, shall be deemed a misdemeanor, and any person or persons who shall be convicted of any one of the above acts or omissions shall be fined not less than $50 nor more than $500 for each and every offense; shall forfeit all claims to indemnity for loss from the State, and upon conviction a second time shall, in addition to the above-named fine, be imprisoned for a term not less than thirty days nor more than six months.

SEC. 154. The following regulations shall be observed in all cases of disease covered by this chapter:

First. It shall be unlawful to sell, give away, or in any manner part with any animal affected with or suspected of contagious or infectious disease; and in the case of any animal that may be known to have been affected with or exposed to any such disease within one year prior to such disposal, due notice of the fact shall be given in writing to the party receiving the animal.

Second. It shall be unlawful to kill for butcher purposes any such animal, to sell, give away, or use any part of it, or its milk, or to remove any part of the skin. A failure to observe these provisions shall be deemed a misdemeanor and on conviction shall be punished by a fine not less than $100 nor exceeding $500. It shall be the duty of the owner or person having in charge any animal affected with or suspected of any contagious or infectious disease to immediately confine the same in a safe place, isolated from other animals, and with all necessary restrictions to prevent dissemination of the disease, until the arrival of the State Veterinarian.

The above regulations shall apply as well to animals in transit through the State as to those resident therein, and the State Veterinarian or his duly authorized agent shall have full authority to examine, whether in car or yard or stables, all animals passing through the State or any part of it, and, on detection or suspicion of disease, to take possession of and treat and, dispose of said animals in the same manner as is prescribed for animals resident in the State.

SEC. 155. All claims against the State arising from the slaughter of animals under the provisions of this chapter shall, together with the order of the veterinarian and the valuation of the appraisers in each case, be submitted to the State Auditor, who shall examine them without unnecessary delay, and for each one that he finds to be equitable and entitled to indemnity under this chapter shall issue his warrant on the State Treasurer for the sum named in the appraiser's report. All claims for indemnity arising under the provisions of this chapter shall, before they are presented for payment to the Auditor, be submitted to the State Veterinarian, who shall fully inform himself of the facts connected with each claim; if he shall be of the opinion that the claim is legal and just, he shall approve the same in writing indorsed thereon; if he shall be of the contrary opinion, he shall reject it in like manner, and in all cases he shall express in such indorsement the reasons for his approval or rejection, as the case may be. If the State Veterinarian shall reject a claim, it shall then, together with the indorsement of the veterinarian, setting forth his reasons for such rejections, be submitted for determination to a board of arbitration, to consist of three members, which shall be formed as follows: The State Veterinarian shall select as one member of said board one stock grower, who shall be a resident of the county wherein the slaughtered animals for which the claim is made ranged. The claimant shall select as such member of said board another stock grower, who shall be a resident of the same county, and these two so selected shall choose the third member of the board from among the stock growers of the same county. The arbitrators shall have power to appoint a time and place for hearing; to adjourn from time to time; to administer oaths to witnesses; to hear the allegations and evidence of the parties, and to make an award thereon. All the arbitrators shall meet and act together during the investigation; but when met, a majority may determine any question. Before acting, they shall each be sworn, before an officer authorized to administer oaths, faithfully and fairly to hear and examine the allegations and evidence of the parties in relation to the claim in controversy, and to make a just finding according to their understanding and according to the provisions of this chapter. The award of the arbitrators shall simply be to the effect that they find the claim legal and just according to the provisions of this chapter, or the reverse, as the case may be. The award shall be in writing, signed by the arbitrators, or a majority of them, and shall be forwarded by them, with all the papers submitted to them, to the State Auditor. If the board of arbitrators shall concur with the State Veterinarian in rejecting the claim, their decision shall be final. If the board of arbitrators shall find that the claim is legal and just, then the said claim shall in all respects be held as though the State Veterinarian had in the first place approved the same.

In auditing any claim under this chapter it shall be the duty of the Auditor to satisfy himself that it does not come under any class for which indemnity is refused by this chapter, and he shall require the affidavit of the claimant to this fact, or, if the claimant be not cognizant thereof, then of some reputable person who is cognizant thereof, and the Auditor may, at his discretion, require further proof. The indemnity to be granted shall be two-thirds of the ordinary value of the animal as determined by the appraisers, without reference to its diminished value because of being diseased. It shall be paid to the owner upon his application and the presentation of the proofs prescribed herein; and it shall be the duty of said owner to make such application within six months of the slaughter of the animal for which payment is claimed, failing which such claim shall be barred by limitation.

These payments shall be made by the State Treasurer, as before provided, and from the fund provided by this chapter.

The right to indemnity under this chapter is limited to animals destroyed by reason of the existence or suspected existence of some epizootic disease, generally fatal and incurable, such as rinderpest, hoof-and-mouth disease, pleuropneumonia, anthrax, or Texas fever, among bovines, glanders among horses, and anthrax among sheep. For the ordinary contagious diseases not in their nature fatal, such as scab and hoof rot in sheep, and epizootic influenza in horses, no indemnity shall be paid.

The right to indemnity shall not exist and payment of such shall not be made in the following cases:

First. For animals belonging to the United States.

Second. For animals that are brought into the State contrary to the provisions of this chapter.

Third. For animals that are found to be diseased or that are destroyed because they have been exposed to disease before or at the time of their arrival in the State.

Fourth. When an animal was previously affected by any other disease which from its nature and development was incurable and necessarily fatal.

Fifth. When the owner or person in charge shall have knowingly or negligently omitted to comply with the provisions of the last two preceding sections.

Sixth. When the owner or claimant at the time of coming in possession of the animal knew it to be diseased, or received the notice specified in the first clause of the last preceding section.

SEC. 156. Each member of boards of arbitration formed and acting under the provisions of this chapter shall receive for their services the sum of $5 per day for each day they may be actually engaged and employed in the investigation of any claim, and shall be paid by the State Veterinarian out of the "veterinarian contingent fund."

SEC. 157. The State Veterinarian shall receive for his services the sum of $1,200 per annum, together with his actual necessary traveling expenses when in the performances of his duty, provided said actual necessary traveling expenses shall not exceed $750 per annum.

The veterinarian is hereby authorized, in his discretion, to appoint a deputy, for the performance of whose duties the veterinarian shall be responsible, and who shall exercise such powers as may be deputed to him by the State Veterinarian. Such deputy shall receive not exceeding $4 per day for the time actually employed. The appraisers herein provided for shall each receive $5 for each day or part of day they may be actually employed as such, which shall be paid from their county fund upon the certificate of the justice who summoned them. The justice shall receive his ordinary fee for issuing a summons, to be paid out of the county fund. The members of the board of health, veterinarians, physicians, or stock owners, called in consultation by the veterinarian, shall each receive $5 for each day or part of day they may actually be so employed, and 10 cents per mile mileage for distance actually traveled, which sums shall be paid from the veterinarian's contingent fund hereafter provided. For this and other incidental expenses connected with his work, and made his duty by this chapter, such as his traveling expenses, causing animals to be slaughtered and their carcasses burned, and disinfecting infected premises, the veterinarian shall have at his disposal the sum of $1,200, which shall be known as the veterinarian's contingent fund. Before entering on the discharge of his duties he shall give good and sufficient security in the sum of $5,000 for the proper management of the same. He shall make a sworn statement semiannually to the Governor, supported by full vouchers of the amount disbursed; and any part of the $1,200 not used shall be covered into the State Treasury.

SEC. 158. The State Auditor shall pay no claim for indemnity under this chapter which shall have been rejected by the State Veterinarian, unless the same shall have been submitted, as hereinbefore provided, to a board of arbitration and by such board decided to be legal and just. If any claimant shall refuse to submit his or her claim, which shall have been rejected by the State Veterinarian, to a board of arbitration as hereinbefore provided, such refusal shall be deemed conclusive evidence of a waiver of all claim for indemnity under the provisions of this chapter.

SEC. 159. The liability of the State for indemnity for animals destroyed under the provisions of this chapter in any two years is limited by and shall in no case exceed the amount especially appropriated for that purpose and for that period.

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BULLETIN NO. 29. (B. A. I. 165.)

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY.
D. E. SALMON, D. V. M., Chief.

AMERICAN BREEDS OF FOWLS.

I.—THE PLYMOUTH ROCK.

BY

T. F. McGREW.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1901.

LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Animal Industry,
Washington, D. C., June 1, 1901.

Sir: I have the honor to transmit herewith for publication a bulletin on Plymouth Rock fowls, being the first part of a report on American breeds of fowls.

The Plymouth Rock breed is the most popular creation of the American fancier's art. It is not only a beautiful bird, but as a general-purpose fowl it is unsurpassed. It is medium in size, excellent for the table, a good sitter, and at the same time rivals the smaller breeds in activity, hardiness, and egg-laying propensities. It is a favorite breed for the production of broilers and capons, and in the show room it excites the admiration and enthusiasm of all who love to see beauty and symmetry in our domesticated birds.

Nearly everyone is more or less familiar with the general appearance of the Barred Plymouth Rock, but there are comparatively few who understand the different points of these birds, the defects which the farmer tries to avoid, and the ideals of perfection toward which he is striving. The plumage of birds has an even greater effect in the characterization of breeds than have the coats of other farm animals, and hence the breeder pays special attention to the body color and the markings of the feathers on different parts of the body. Those who are strictly utilitarian in their aims may think that too much attention is paid to the feathering; but it should be remembered that the perfection of feathering and the ability to transmit this standard is an evidence of pure breeding and prepotency. Nor should the æsthetic element in the breeding of farm animals be entirely discarded. Beauty of form and beauty of coloring, bred according to a standard of perfection and developed almost to the exact ideals of that standard, serve to excite interest and enthusiasm beyond what can be realized by utilitarian qualities alone.

Considerable attention is properly given by the author of the bulletin to the plumage, the standard requirements, and the methods of breeding by which these are best secured. These are the points upon which information is perhaps most needed. The Buff and the White Rocks receive their due share of attention. Mr. T. F. McGrew, who has prepared the bulletin, is a well-known judge of poultry and a prolific writer on questions relating to breeds and breeding. The illustrations were made by Mr. George E. Howard, and have received the approval of some of the most skillful breeders of these birds.

The time has come when Americans no longer need to go abroad to obtain either beauty or productiveness in fowls. The best breeds that exist have been produced in our own land, and when their merits are fully understood there will be an increasing demand for them in other parts of the world.

Respectfully, D. E. Salmon,

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AMERICAN BREEDS OF FOWLS.

THE PLYMOUTH ROCK.

INTRODUCTION.

The introduction of the Asiatic-bred fowls into the New World had great influence for good among our so-called domestic fowls. The Shanghai or original Cochin, and also the gray Asiatic fowl that was the original foundation stock from which our Brahmas were formed, brought increased size and better egg production, and their use as a cross upon our barnyard fowls created a desire for more and better poultry of true breeding.

In the efforts put forth for the advancement of quality in our farm-bred stock use was made, without any concerted understanding, of all the breeds that came to us from other countries. These new and highly esteemed fowls were mixed promiscuously with our home-bred fowls, the result of which gave us the foundation for all of our so-called American breeds. The original foundation stock that has been developed into our Plymouth Rock fowl came from an experimental cross of two birds that were united on account of their egg-producing qualities. The start of what came to be known as Jersey Blues and Rhode Island Reds began under like conditions.

The Brahma was the first breed of fowls that was credited to us as an American production; and, while they are classed as an Asiatic fowl, they are the outcome of great skill in handling the very crude original by our American fanciers, who have given over fifty years of attention to perfecting them. While Americans are given credit the world over for originating the Brahmas, these birds are grouped in our standard of perfection as belonging to the Asiatic class.

In the formation of the breed classes in the American standard of perfection all breeds and their subvarieties that have been made in this country by crossing and by the improvement of other crosses are classed as belonging to the American breeds, or families. These comprise the Plymouth Rock, Wyandotte, Java, and Dominique. They are the acknowledged breeds of our standard, belonging to what are known as the American classes.

FAMILY COMB DISTINCTION.

The fowls of the American classes have their distinct style of combs, which is an emblem of family difference. The comb is so marked as to become the guide for the uninformed in selecting the families one from another. The Dominique is known as the Rose Comb Dominique, from the fact that it has the so-called double, or rose, comb. It is a low, thick comb, the upper surface of which is covered with small points, the rear end of which comes to a point called a spike. This spike in the Dominiques should be elevated at the end.

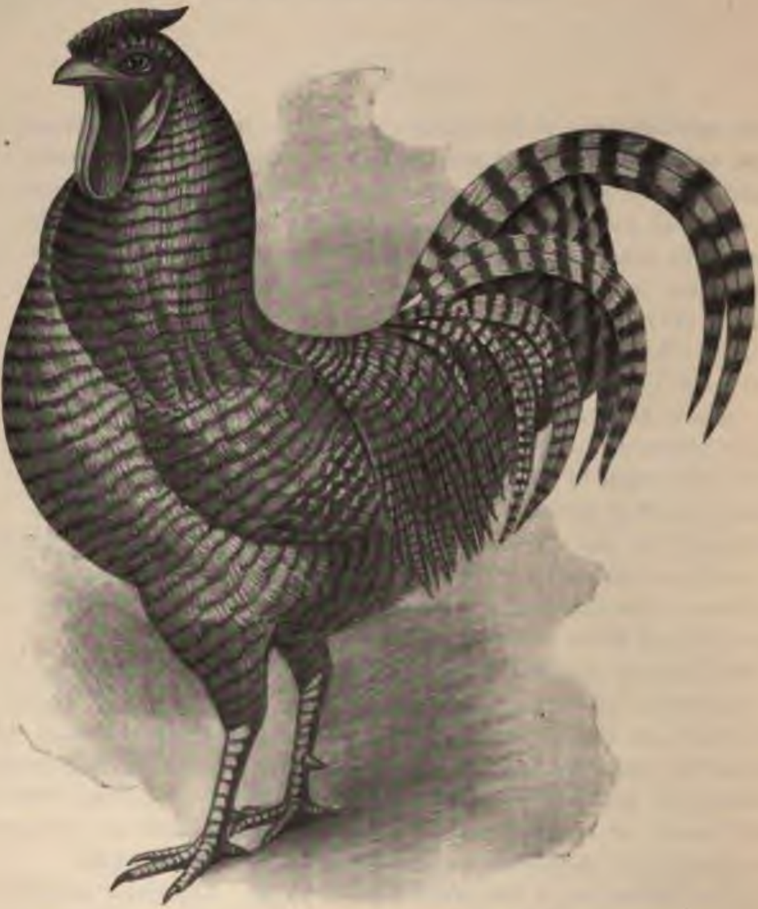


FIG. 1.—American Dominique male.

The Wyandotte also has the rose comb, but it is of a smaller pattern than the comb of the Dominique, and the end or spike turns down to follow the shape of the head; the points on top of comb are not so prominent, nor is the spike so long as is proper for the Dominique. The Plymouth Rock and Java have what is known as the single comb, which is upright and nicely serrated. The combs are so distinctly different as to be easily recognized.

THE UTILITY VALUE OF THE AMERICAN CLASS.

The American breeds are often termed the "general-purpose fowl," from the fact that when young they make the best of broilers and when matured a most perfect roaster. Their natural formation, inviting plumpness, makes them the desirable market poultry. In addition to all this they have the beautiful yellow skin so much sought after by our people; they are of quick growth as compared with other good-sized fowls, and as egg producers they average nearly the equal of any other breed; they lay a medium-sized brown egg of the very best quality; they are easily kept in good condition, and are among our best winter layers; they are very vigorous and hardy and able to withstand our most changeable climate with as little inconvenience as any known fowl.

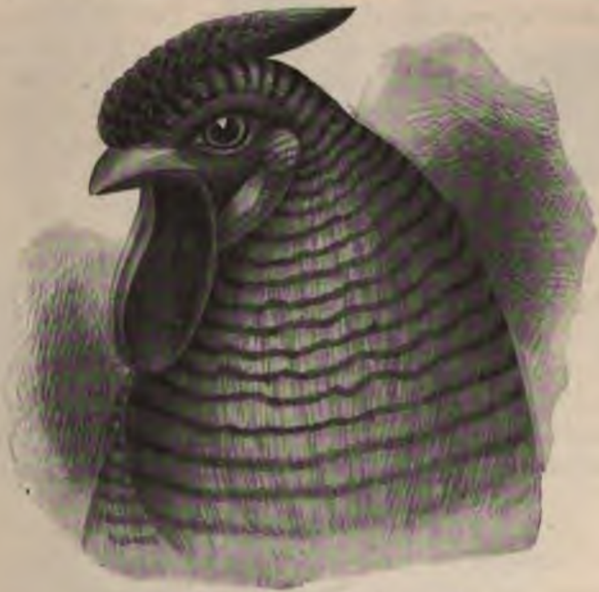


FIG. 2.—Head of American Dominique male.

The Rose Comb varieties are least liable to injury by the extreme cold of our Northern climate. At the same time the medium-sized combs of the other varieties are not so large as to be frosted when properly housed, as all poultry should be during the cold months of winter.

THE AMERICAN DOMINIQUE.

The American Dominique was well known in early days throughout New Jersey and eastern New York as a fowl of great merit as an egg producer. The eggs of this fowl graded A1 in the New York market, and as table poultry it had no superior. At that time the plumage was of a light-gray color, barred across with a darker shade; it had both the single and double comb, and the shanks and feet were yellow in color. It is claimed for this variety that it was brought to this country by both the French and the Dutch. This is of but little importance, for such birds might be produced at will.

The Dominique color is a combination of black and white. It comes as one of the results of crossing black and white fowls. The mottling of the Java and Houdan and the Ancora are other results of the same methods of mating pure black and pure white fowls together. When the poultryman of the past began selecting the Dominique for improving into a breed that would reproduce itself he preferred birds with the rose comb, the full sweeping tail, and the light-gray ground color barred with the bluish gray. In order that we may have a better conception of the top cross that produced our Plymouth Rocks, the American Dominique as seen in its prime will be described.

The general appearance of the American Dominique was not unlike our present large-sized Brown Leghorns. They were somewhat fuller in breast and deeper in abdomen. The female had a slight inclination toward both fluff and cushion formation; main tail feathers like our present Leghorns, only not quite so extended; breast full and carried rather forward, the male being quite like a large Brown Leghorn male in shape, with a tail almost as full as seen on the Hamburg. Their combs were rather larger than the Hamburg comb, but of the same form, type, and carriage, the rear end, or spike, turned upward, quite unlike the Wyandotte comb, which follows the shape of the head. They had a neck that was arched and covered with very full hackle plumage. Back broad and medium in length; in color and barring quite like an inferiorly marked Barred Plymouth Rock of the lighter shade of color. Such was the general make-up of the Rose Comb American Dominique.

SINGLE-COMB FAMILY.

When we consider our American made or adopted breeds some must be mentioned that are not included in the list of so-called "Standard fowls." Some of them must be considered because they were used in creating a portion of our standard varieties, while others have had a position among our standard breeds, but have become obsolete from lack of admirers. At this time those only will be noted which belong to the single-comb family, for they alone will conform to the demands of our Plymouth Rocks. The Rose Comb Dominique has been described first, the object being to keep it entirely separate from the single-comb fowls.

The single-comb fowls which belong to the American classes are these: The Java, the Plymouth Rock, the Jersey Blue, and the Rhode Island Red. All of these are classed as truly American—the Java by adoption and improvement, the others the result of crosses.

THE JAVA FOWL.

From all information obtained we learn that the early Java (whi
formed one-half of the original cross which produced the Plymou
Rock) was of Asiatic blood. The illustrations of what were th
called the "Great Java" are quite similar to the illustrations of pri
tive Cochin China fowls, and these, combined with the written descr
tion of the Java fowl, point conclusively to Asiatic origin. T
importations of these fowls were named after the ports from whi
they came; thus the same breed came to us under several nam

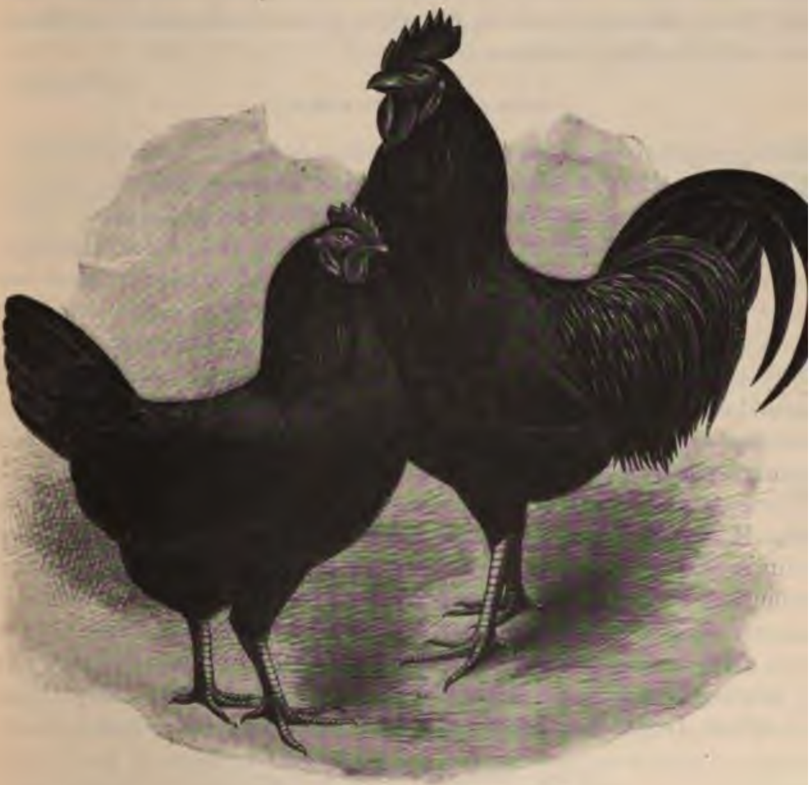


FIG. 3.—Black Javas.

The Java is described as a large black fowl with single comb a
smooth legs, weighing from 18 to 20 pounds per pair. They are spok
of as being among the most valued fowls of the day, and their prolifica
in eggs suggested union with the Dominique, in the hope of gaini
a better egg producer than either. Those who made the cross did
without a proper consideration of the result. Both of these bre
had already the highest reputation in this respect, and those who kn
their valuable qualities exchanged stock, hoping that by intermingli
the new blood they would gain an increased precocity in future sto

Javas, as we now find them, are simply an improved or modified type of the original. Their general make-up is a long, broad, and deep body. They are the longest in back and body of any of our American breeds. As of Standard formation, they represent the most extended type, the Wyandotte filling the position of compactness, the Plymouth Rock the middle position—giving us three distinct formations. When we bear in mind that the Java type calls for the long back and body, no cushion, and but little inclination toward fluff, full tail and sickle feathers, we have before us the cause of many faults that are continually cropping out in our Plymouth Rocks. Much trouble and delay could be avoided were due consideration given to ancestral conditions when contemplating improvement.

THE PLYMOUTH ROCK.

When first produced no other name was needed; they were simply the Plymouth Rock fowls, and became well known under this title the world over. No other fowl has ever enjoyed equal popularity in this country, and we presume they are better known, and at the same time less understood, than any other fowl of minor reputation. More has been written about them than could be read in years, and there have been almost as many opinions and theories placed before us as there are writers. This has caused considerable confusion, until the alarm sounded ascribing retrogression to the breed, when the attention of those best able to cope with the difficulty became attracted, and marked improvement soon followed.

There seems to be no condition, surrounding, or climate unfavorable to the Plymouth Rocks. Their constitutional vigor appears to have no limit. Where any fowl can live they will prosper. They stand confinement, and when allowed freedom prove excellent foragers. They are prolific in yielding medium-sized brown eggs of the richest flavor. Under all conditions they will produce fully as many eggs as any thoroughbred fowl. Below is given their record in competition with others, from which it will be seen where they stand in comparison:

Yearly contest and calculated egg yield.

Breeds.	Tests reported.	Eggs laid in contest.	Average yield.	Weight per dozen.
	Number.	*Number.*	*Number.*	*Ounces.*
Barred Plymouth Rocks	262	173	150	23
White Plymouth Rocks	289	164	150	23
Single-Comb Brown Leghorns	277	157	160	19
Single-Comb Buff Leghorns		183	160	19
Silver-Laced Wyandottes		113	150	21
White Wyandottes		176	150	21
Rhode Island Reds		166	150	21
Crossbred pullets		129		

The first column gives the figures reported from a test under very high feeding and best possible attention. The second gives the figures obtained in selecting from over fifty lots, all reported monthly for a year. In the third column are presented the figures arrived at by calculation and accepted as nearly correct, as results that can be obtained under the best management.

This table records the egg yield of the different lots of fowls entered for competition in annual test, conducted by persons who have had to rely upon the statements of those owning and entering the fowls; and while we naturally hesitate to claim knowledge of their authenticity, at the same time the studious attention bestowed upon the work should assure us that the above figures are a fair average for the fowls competing.

ORIGIN OF THE PLYMOUTH ROCK.

The first fowl to bear this name was created by intermingling Cochin, Dorking, and Malay blood, the result of which was a mongrel of little real value. The knowledge of this inferiority brought an influence against what was to be the most popular breed ever produced. This we know from the fact that when the present Barred Plymouth Rock was first announced those best informed believed it to be the same as before, under other guidance.

Our present type of Plymouth Rocks is the outcome of careful handling of fowls secured from crosses made on the same lines as those reported to have been made in Connecticut almost sixty years ago, where they mated Rose-Comb American Dominique males with Single-Comb Black Java females. These same crosses, also others of like character, are claimed to have been made by persons who had obtained much the same results, but the Rev. H. S. Ramsdell, residing in Connecticut at the time, gives the name Woodstock as the town of their origin, and persons interested he names as Giles, Clark, Thayer, Spaulding, and himself. While this removes all doubt of the origin of this one strain of Plymouth Rocks, it can not detract any credit that may be due to the Messrs. Upham, Pitman, Felch, and others for the part they took in originating this type. However, be this as it may, the real point of interest is, How were they originated and advanced to their present position among high-class, standard-bred fowls?

There can be no reasonable doubt as to the make-up of the original cross having been as stated above, the product of which was grizzled gray and speckled. They were not of solid color, neither were they barred like the Dominique. In size and form they resembled the Java, while their color bespoke the influence of the sire. Those having the best color and single comb among those produced were selected and bred together as the real start of the present perfect fowl. Many subcrosses have since been made, some of which, it may be almost positively recorded, were the Cochin, Dorking, and Brahma, all of which had a tendency for future trouble for those who attempted to produce high-class Plymouth Rocks.

PLYMOUTH ROCK SHAPE.

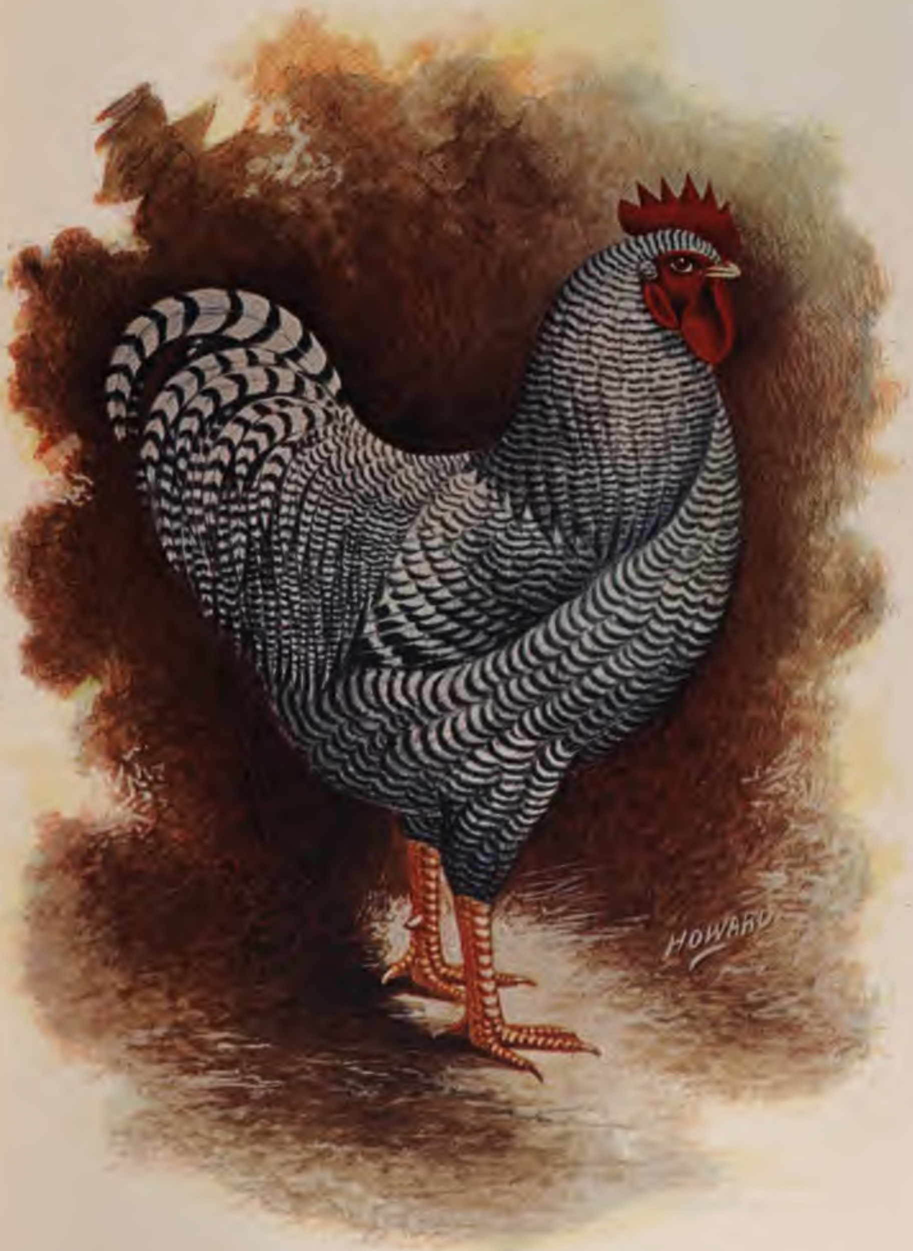
No matter what variety of color they be, the form or shape of all must be the same. The presence of what are known as breed characteristics must be so strong as to stamp them with the unmistakable emblem "Plymouth Rock shape." The importance of this is shown in the fact that some persons can select a White Plymouth Rock from a White Wyandotte only by the difference in comb. This is the outcome of not demanding greater attention to type in the show room, where size, color, and comb are given more credit than is due and too little to the breed emblem—shape.

An effort is here made to make plain the proper shape of a Plymouth Rock and all sections, including head and its belongings, are described as minutely as possible, omitting reference to color, which will be taken up separately.

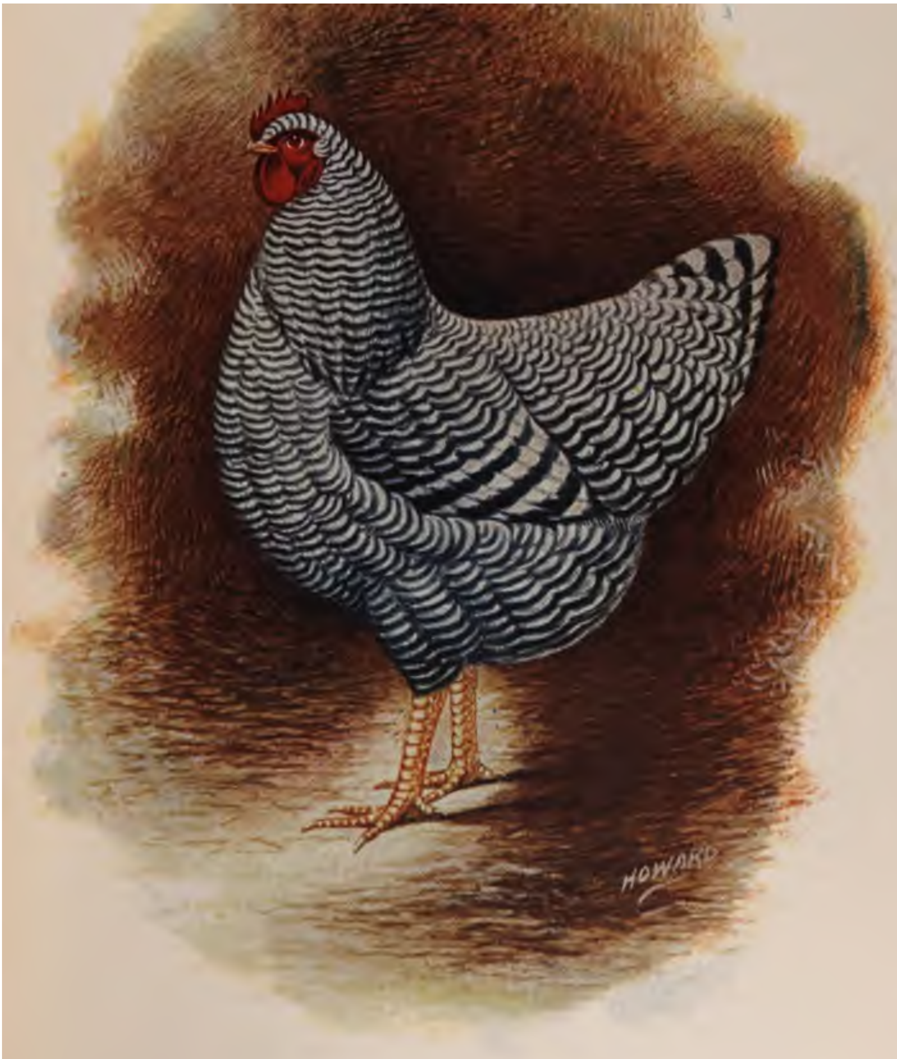
The head of the male should be medium size, rather round when viewed from the side, fairly prominent in front, back short and stout and nicely curved. The comb single, rather below medium, never large or coarse, but of proper size to give a finished, neat appearance in conformity with size of the specimen; it should be straight, upright, and free from all defects, a perfectly even surface throughout. The serrations must be regular and in uniform proportion, grading fore and aft from the center, where they are largest. The rule is five serrations. The points of the comb must be even and regular. The comb, from the front, where it rests on the beak, should curve gracefully back, finishing with a nicely shaped heel, just forward of the juncture with the head and neck. It should form a half oval over the head, being highest in the center, gently declining either way, neither high in front nor in rear. A twisted, uneven, or thumb-marked comb is much despised; a perfectly formed comb, the crowning effect. A long head or beak is quite improper and should not be tolerated; it destroys the whole appearance of an otherwise handsome specimen.

Wattles should be moderate in size and nicely rounded and of even size and fine texture. When ill shaped or uneven they are a deformity. Ear lobes should be neat, fine, and of equal size, nicely placed on the face below and in the rear of the eyes. A nice, prominent pair of wattles and ear lobes, if of good shape and texture, add much to the appearance of the head.

Eyes should be round, large, bright, and red in color. In the Standard the color is called a clear, rich bay. Weak-colored or pearl eyes are almost a deformity. They look bad, and, in addition to their ill appearance, indicate poor breeding or delicate constitution. The eyes of a strong, vigorous specimen are usually very bright and striking in appearance.



BARRED PLYMOUTH ROCK MALE.



BARRED PLYMOUTH ROCK FEMALE.

A narrow or thin neck on a Plymouth Rock looks very bad. An abundance of plumage forms a full neck where it rests on the shoulders, the neck tapering gradually to the junction of the head. The strong full appearance makes the neck seem shorter than it really is, while a thin, narrow neck looks to be twice the length demanded. A well-proportioned neck, nicely arched from just back of the comb to the body, is the neck required for the well-proportioned specimen.

The back of the Plymouth Rock is one of its most important belongings. We quote in full the Standard description: "Broad, of medium length, and rising with a slight concave sweep of the tail; saddle feathers of medium length and abundant." This description calls for about the same style of back as is mentioned for the Brahma. Note that the Plymouth Rock back is fashioned after that of the Brahma, the Wyandotte back resembling that of the Cochin. No cushion is called for in the Plymouth Rock, while for the Wyandotte male a broad, full saddle is required, the female being slightly cushioned. If these distinctions of back were strictly adhered to, the Plymouth Rock form would be more distinctive.

The broad back of medium length (medium as between the long back of the Java and the short back of the Wyandotte) is essential. Nothing short of this description fills the Standard demand, and a demand of so much importance should be most strictly adhered to. If this description were well understood, and followed to the letter, much of the present confusion as to type would disappear.

Tail formation is quite a factor in the proper finish of back. If the main tail feathers are strong and fairly well spread, they help to build up the back to the proper ending, in accordance with the Standard; but when these feathers are contracted or narrow, they allow the saddle plumage to gather and form the narrow or pinched appearance instead of the proper sweep to the tail. They also spoil the shape of the tail itself, giving a tapering appearance from the shoulders back.

The tail of the Plymouth Rock, in formation and finish, resembles somewhat the tail of the Brahma. The carriage of each is about the same and the sickle feathers and coverts are fashioned much on the same lines. Therefore, when it is stated that the Plymouth Rock back, including the tail, is fashioned after the Brahma, it is hoped that the proper formation of each in accordance with the Standard is properly understood as the meaning. This positively prohibits the Cochin form of back for either.

The under portion of the Plymouth Rock, including breast, under part of body, abdomen, and legs, is of equal importance. The broad, deep, and well-rounded breast gives these fowls their value as table poultry. The notably rounded keel bone that extends well forward helps to build out the foundation for plenty of breast meat, while the strong, full abdomen provides the space for eggs in the female. Bu both the male and female are confined within the demand for moderately full fluff only, while in the Wyandotte considerably more fluff is allowed. Here, again, is the fact that while the Cochin form is allowable in the Wyandotte it must not be present in the Plymouth Rock. Wings of medium size, broad and full at the shoulders, help to spread the hackle and widen the shoulders, giving the strong, broad appearance as the specimen faces one, while close, narrow wings help to give the narrow, inferior appearance, such as is often found on what are called undeveloped specimens. The strong, prominent wing point, or bow, which is well built out with under muscles, adds very much to the appearance of the fowl.

A good, large thigh that is supported by stout, well-proportioned shank of medium length, good feet and toes compose the proper leg for the Plymouth Rock. A long leg, thin shank, and ill-shaped toes are incorrect, for without the proper foundation a fowl of such build as the Plymouth Rock could not have that finished appearance demanded for it.

A FEW POINTS CONCERNING THE FEMALE.

While the general description given above touches upon the form of both male and female, there are some features of the female which require a more special notice. The most important of these is the tail. This should be so carried as to form a continuation of the back. It should not be so elevated as to form an angle in the back, nor should it droop in the least. To give the best appearance to the back, the main tail feathers may spread out at the base, but should come together at the point.

The most striking feature of a well-formed Barred Plymouth Rock female is a beautiful head and neck, which are most difficult to obtain in any approach to perfection. In many instances the head is large and heavy in appearance, and the barring of the neck gives rather a spotted appearance on the surface, which should show true barring. When of proper make-up, the head is nicely formed and well set on the neck; the beak should be short and strong and nicely curved, so as to present a finished appearance; comb should be neat and rather small, but well defined and of suitable proportions to conform to the head; eyes bright and clear, bay in color; neck nicely curved, gradually widening toward the juncture with the shoulders. This graceful head and neck make a most attractive appearance.

The medium length as demanded for back furnishes correct proportions for a graceful sweep or incline of back toward the tail, as described. This description allows the beautiful back formation that should be free from all appearance of a cushion, for the true Plymouth Rock female should be free from cushion on back and have only a slight showing of fluff. While they are required to be well feathered about the abdomen, there should not be a fluffy formation.

Back, breast, and body should be well rounded and full at point of breast; the wings closely set against the body, and strong at shoulder; main tail feathers standing at a slight incline as if they formed the end of the back. They should be so spread at the base as to form a graceful support to the back without causing a too full appearance at point of wing. The under-filling of the tail should be prominent.

The marking of the Barred Plymouth Rock female, when properly distributed, is grace itself; beginning with the close, narrow bars, just back of the comb and gradually broadening and widening as the tail is approached, there is formed what might be called circles of grayish blue when seen under good lights and conditions. Much depends upon the evenness of barring and the well-defined lines between the two colors; for when either encroaches upon the other the greatest beauty is wanting. This combination of light and dark colors creates the so-called blue tint of the Barred Plymouth Rocks. The beauty depends entirely upon the purity of color and the graceful formation of the bars.

The beak and shanks of the female should be true yellow; but it is a fact that many more have dark spots than have the true color. These dark spots come from the early Java cross, no doubt, and will continue with them for years to come. The shank should be strong and well placed, with no inclination to turn in at the hock. They should be wide rather than narrow at this point.

THE BARRED VARIETY.

We have never seen an authentic proof that there is any other native North American fowl than the turkey that has been domesticated. All of our poultry, both land and water fowls, which are classed as domestic poultry, came to us from other lands. Those we have are all the result of careful crossing, mating, and improving. We have always paid the strictest attention to color demands, often at the sacrifice of shape. This is a natural result almost sure to follow close breeding for color. Good, even color of plumage can be procured and maintained in highest perfection only by close line breeding, a natural result being more or less loss of size and good form.

Line breeding, or inbreeding, is an absolute necessity to produce a certain type or color. There is no other way to produce either with any certainty; and, while we are thus guiding our stock into new conditions, we are as surely reducing their size and injuring their shape and vigor. The only sure way to maintain all is to have more than one line of breeding stock, so as to be able to invigorate one by the other with as little injury to color as possible.

Our demand for perfection of color and barring in our Barred Plymouth Rocks has driven all those who produce for exhibition purpose to close line breeding and to the double mating system. These two methods have proved successful for color, but at the same time have not added more grace or better form to the fowls as a breed. In this particular it has been claimed that our Plymouth Rocks have declined. But we may feel assured that the ability of our American breeders will soon remedy this error, and we shall have far better form than before in addition to perfection of color.

The color demand of the standard is bluish gray, barred with narrow, parallel lines of dark blue, approaching almost to a positive black. The barring is to be close in all sections of the body, and on neck and saddle hackle narrower and closer than in other sections. The barring must positively show the entire length of the feathers in all sections when they are not mostly composed of down. In the primaries, secondaries, and feathers of the tail the barring is to be wider than in other sections. The shade of surface color is to be nearly or quite uniform throughout.

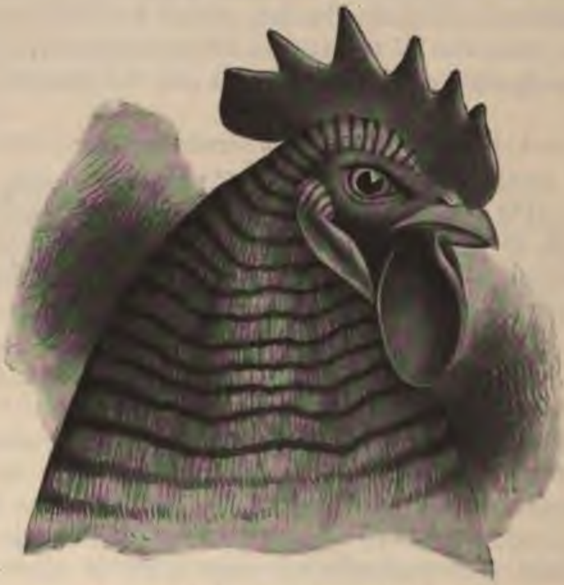


FIG. 4.—Head of Barred Plymouth Rock male.

The most perfect colored Barred Plymouth Rock is one whose color is so perfectly blended as to present to view the attractive blue shade so continually talked of as belonging to them, but so seldom seen in anything like perfection. When the ground color is of a clear bluish gray and the modified blue black, so-called, and the lines between the two shades are clear-cut and distinct, the combination, under proper light, reflects the blue tint which is so desirable in a high-class specimen.

The crowning beauty of the Plymouth Rock is its purity of color. The two shades, one light and the other dark, must each be pure and true to its color and positively free from any tinge of foreign color. This, to begin with, is the fundamental condition when selecting for proper coloring. When we have this purity of color, perfect surface color is assured.

PROPER BARRING.

There are two very important factors in the problem of barring often passed over without due attention; that is, the narrow and parallel lines of dark blue. The bars must be narrow and straight, those of the neck fine and distinct. Spots on the surface of the neck plumage are not bars. The barring of the neck must entirely cross the feather, barring it just as perfectly as the most perfect feather of the body. Or, in other words, fine lines of the darker color must extend across the light shade, as straight as if made with mechanical precision, from the point of the feather down close to the skin in perfect regularity.

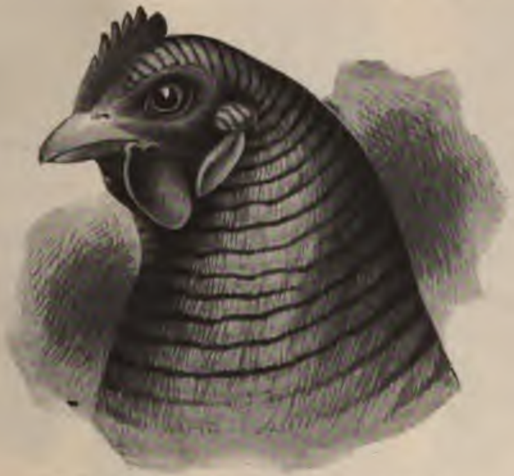


FIG. 5.—Head of Barred Plymouth Rock female.

The lines in the smaller feathers close to the head are the finest, and they grow wider and more pronounced until they reach the lower portion of the hackle, which are about the same as the saddle plumage.

The saddle plumage of the male is another section that has the narrower lines of barring. While these lines are not so fine as in the neck plumage, they conform to one another in their graduation and style of lines. Often the most beautiful barring is present in this section. The prevalent defects found in these sections are the V-shaped bars and the broken lines, where the quill, or shaft of the feather, passes through them. In the latter the line, or bar, on one side of the quill will be its own width higher on the feather than the continuation of the same bar on the other side, thus: +— —+. These two defects are quite serious, as they destroy the uniformity of surface bars, which should parallel each other, and, in addition to this, count against them in undercolor.

The body plumage, including breast of both male and female, is barred alike, being broader and more striking than in neck plumage. Each feather usually ends with the darker shade. When this is not the case the specimen is frequently too white for exhibition. It is especially important that the lines in these sections should be very uniform and straight. The dividing line between the light and dark shades must be very sharp and entirely free from bronzy shading.

The back plumage of the male should conform in shade and barring with its own hackle and saddle plumage. While the barring is not so fine, neither should it be so heavy as to look out of place between the two. This portion of the fowl is one of the weakest color sections of the male bird. Metallic black will often show like a network over the back. Both red and bronzy feathers will come to the surface; and here, more than in any other section, is found the white undercolor. All these faults should be absolutely driven out.

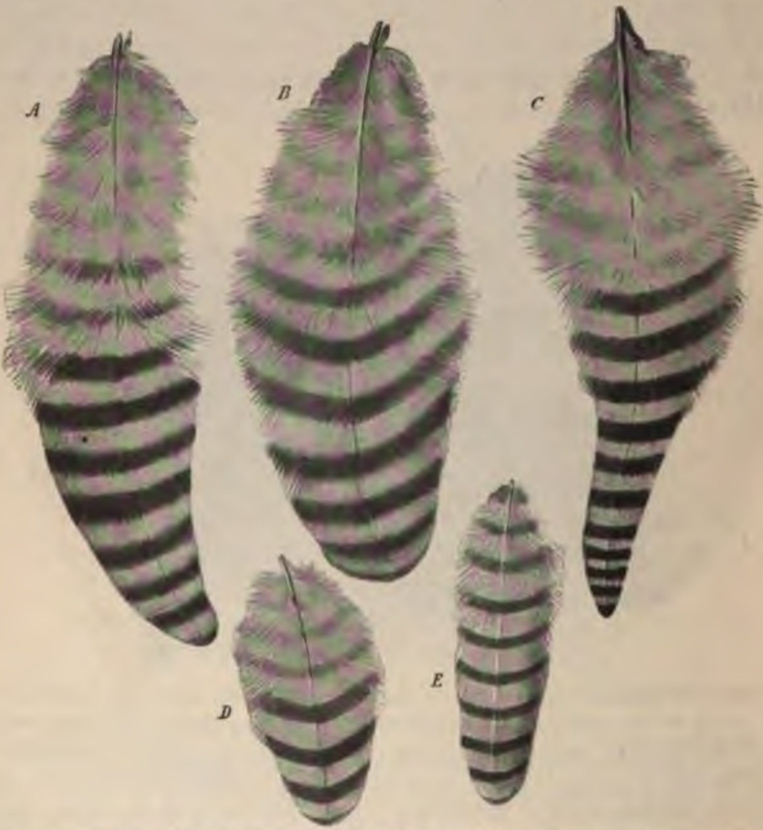


FIG. 6.—Feathers of Barred Plymouth Rock male. *A*, saddle; *B*, fluff; *C*, saddle; *D*, breast; *E*, back.

The main tail feathers of both male and female should have the perfect barring, but should be considerably wider than in any other section. Here, again, is often present the broken bars as shown above, and, being so much broader, they look the more out of place. The clear-colored, regularly barred tail feathers add considerable finish to any specimen, while poor color and irregular barring in the tail feathers, being always in sight, have an unfavorable bearing upon the other sections of the bird. One of the most beautiful effects of plumage comes from a profusion of handsomely marked feathers filling in underneath the tail. This not only vastly improves the general appearance of the fowl, but gives a perfect finish to the tail.

Wing bows of male birds are often defective. Here the barring is often weak and ticked, and the color of the flights of both male and female often have the appearance of gradually merging the one shade into the other. A wing with flights equaling the tail or secondaries in color and barring is quite uncommon, a condition which seems seldom removed.

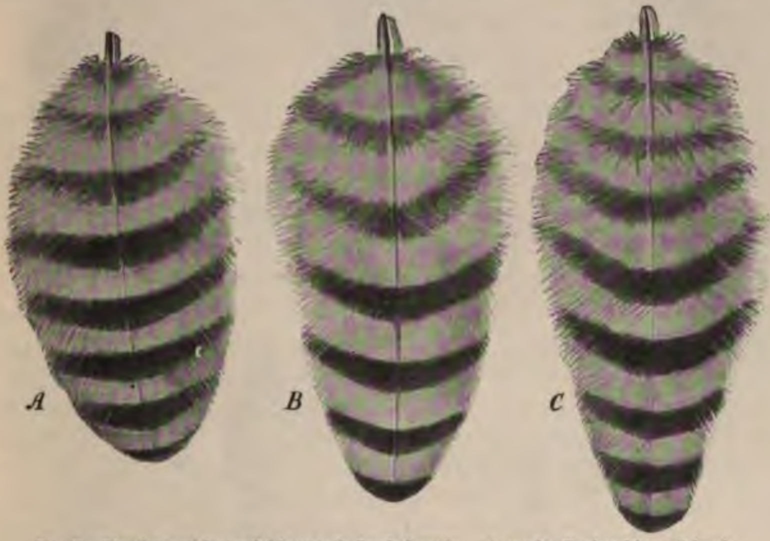


FIG. 7.—Feathers of Barred Plymouth Rock female. *A*, neck; *B*, shoulder; *C*, back.

To sum up the subject of surface color: Whether it be of the very light shade sometimes seen, or much darker, or whatever shade the specimen may be, a uniform shade of color should prevail throughout the fowl. Let it not have a light neck with a dark saddle or back; neither will it do to have one shade on back and saddle, including tail, and another shade on breast. "The shade of surface color must be nearly or quite uniform throughout" to meet the Standard demand.

UNDERBARRING.

The barring must show on the entire length of the feathers in all sections when they are not mostly composed of down. This is the law for undercolor or barring, according to the Standard. Or, in other words, all feathers other than the fluffy feathers that cover the posterior portion of the fowl shall show positive barring to the skin. This with some is taken to mean that the barring of underplumage must be quite as distinct as the surface barring, which is considered erroneous, it not being the intent of the wording of the Standard, as it simply calls for a "barring that positively shows itself the whole length of the feather." In this case a positive showing does not demand the same intensity of color under as upon the surface. While this is the intent of the Standard, at the same time the limited number that has been produced with underbarring approaching the distinctness and perfection of surface barring has attracted the greatest admiration of all who have seen them. Such instances point to this style of barring as being very near to perfection, as gauged by public opinion. If it is possible to produce such intense underbarring and hold the surface color clear and clean-cut, we shall assuredly have an attractive color and style of marking.

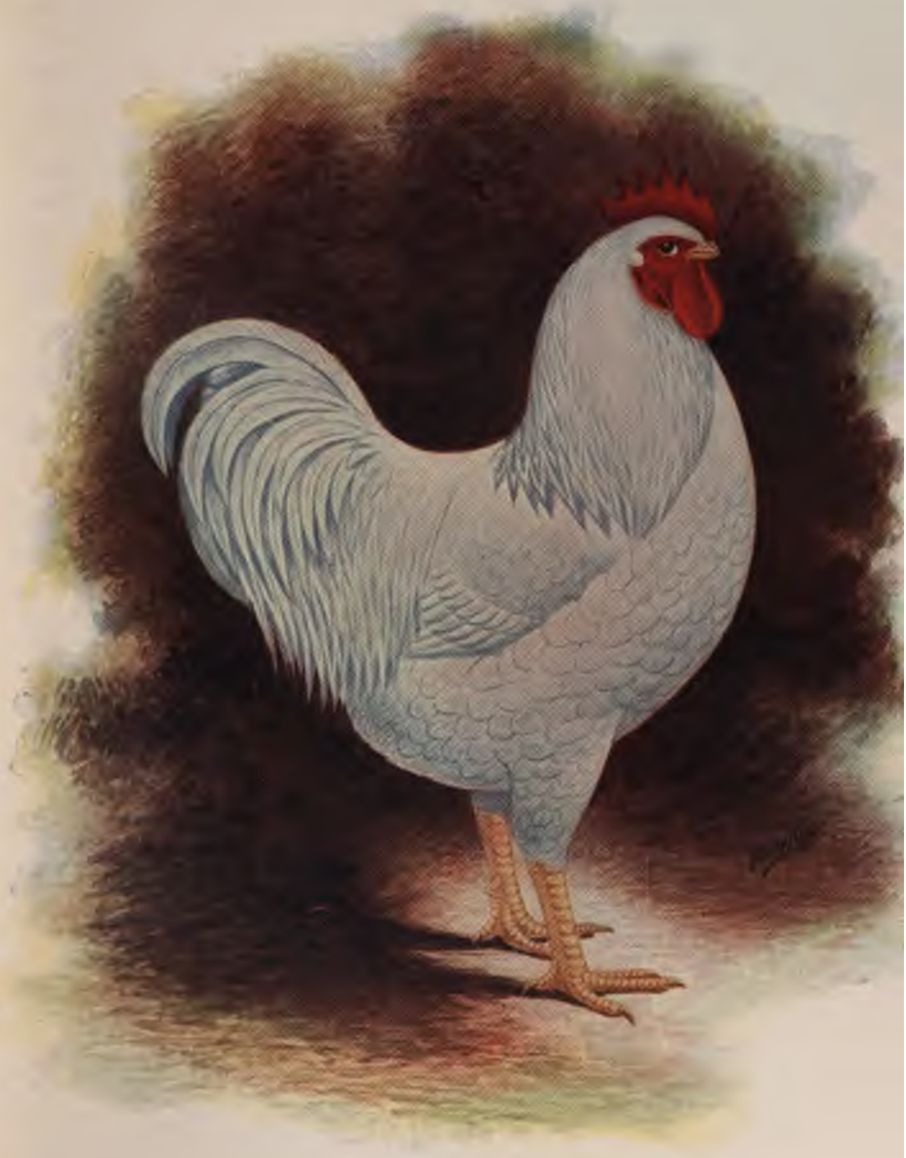
The weak points for underbarring are on the back of both male and female and just forward of the tail of the male. Not very long ago the surface of wing and the plumage of thigh of both male and female were quite deficient, but this is now much improved. The greatest trouble experienced with an excessive underbarring is an injury to surface color. The much barring to the skin carries with it such a predominance of strength in the darker shade as to influence the surface color undesirably and to show the metallic black rather strongly on the males.

When a clear, clean undercolor, nicely barred to the skin, quite plain enough to be readily seen, is obtained, the Standard demand is fulfilled. At the same time the most positive preference is shown, by all who are well informed, for the positive barring, provided it is clear, clean, and regular. Often those who are not fully acquainted with the methods of judging fail to understand why a fowl which fills the Standard demand in undercolor should be discounted as against the one with the better barring. The fact that one has better barring than the other must place it in advance on this point, at least.

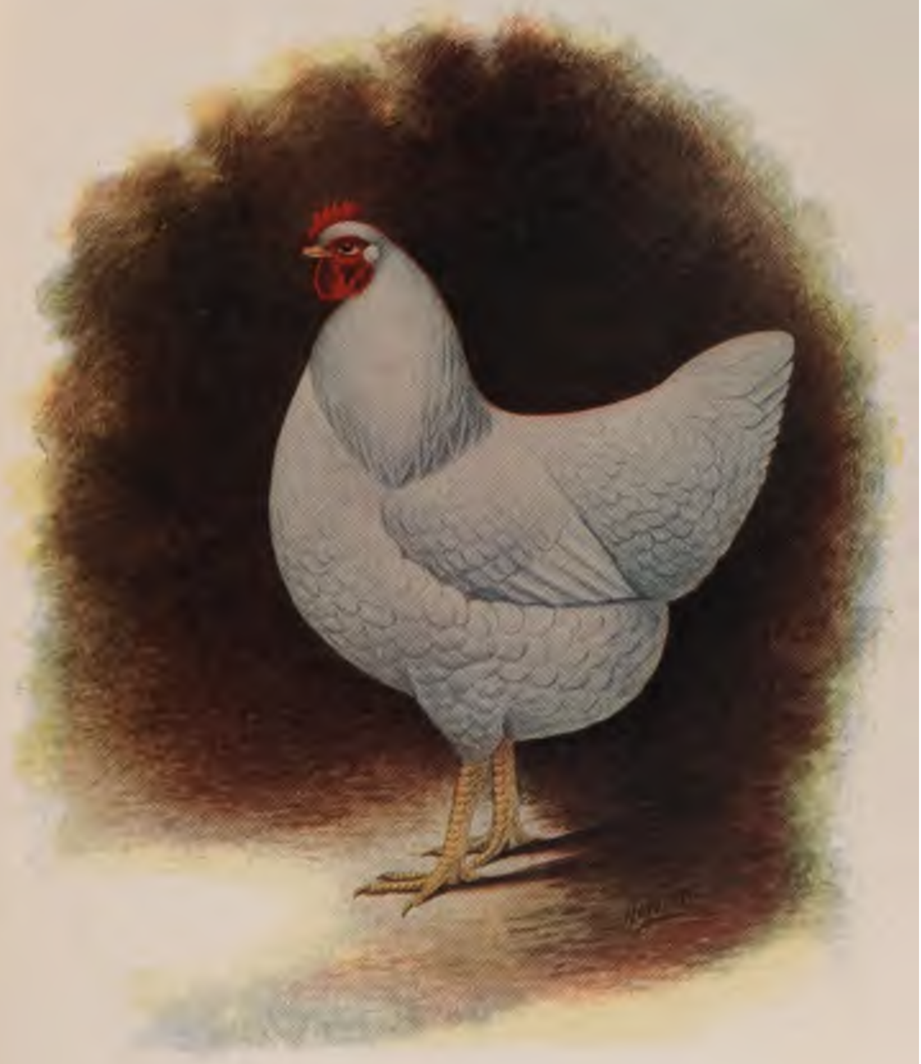
With some, the wing flights are classed as under color, or barring. These are the most difficult to control and to bring within the desired color demand, and few specimens are ever seen that have flights that could be considered within the Standard line. Seldom do we see one in which the lines between the two colors are distinctly drawn. The tendency of the colors to run (as the saying is in the dye shop) seems to invade the flights.

MATINGS.

The formations, as shown in their origin, gives the greater strength of color to the female. The so-called top cross of the lighter-colored male with the darker-colored female still casts its influence toward the



WHITE PLYMOUTH ROCK MALE.



WHITE PLYMOUTH ROCK FEMALE.

too dark female and the too light colored male. This natural condition, it is claimed, renders it quite impossible to produce the proper exhibition color males and females from the same pair. For this reason what is called the double-mating system has come into general use.

There are those who claim to produce exhibition males and females both from the same mating. While this is done to a certain extent, the facts are that by far the greater portion of our best exhibition Barred Plymouth Rocks are produced by the double-mating system. One of our most successful breeders states that each year his single-mating system comes nearer to achieving the same success as has been obtained heretofore from the extreme double matings.

THE SINGLE MATINGS.

When we speak of single matings for producing Barred Plymouth Rocks the possibility of being able to mate a pair, trio, or pen that will produce both males and females of high-class exhibition qualities is implied. If it is possible to select a pair that will produce both males and females of proper Standard color and shape, that have the very desirable surface color and barring, also the requisite amount of undercolor, then we have succeeded on the single-mating system. Until this is accomplished the single-mating method is not a success.

A Standard colored male mated to three or four hens, some of them light in color, some dark, and some medium, might produce both males and females of good quality. But that is not single mating. Single mating, in the strictest sense, is producing both males and females of the highest quality from a single pair. It must be the result of a true single mating of one pair of fowls, not a pen, nor yet a trio.

THE DOUBLE MATING.

This is the selection of what are called pullet-breeding females and mating them with pullet-producing males, for the express purpose of producing exhibition colored pullets; also the selection of cockerel-breeding females and mating them with cockerel-producing males for the purpose of obtaining exhibition cockerels. This is what is known as double mating.

For the production of pullets under this method, select females of perfect Standard color, in barring and underbarring; be careful as to clear, clean-cut barring that is absolutely perfect in all respects, so far as it is possible to obtain it; pay strict attention to the fine, close barring in the neck; see that this is really and properly barred and not marked with broken, or V-shaped, lines. Also look well to the tail, flight, and secondary feathers. Spare no pains in selecting the breeding females, taking only such as will satisfy thoroughly your desire were the same condition of plumage inherited by their future chicks.

With such females place a male of considerably lighter color than they are. Some use very thin-colored males. These very light-colored males with such females as are above described will produce light-colored pullets. Others take what might be called a medium shade and gain the medium color in females. The shade in this way can be partially guided in your pullets. The fact to be borne in mind is that with such females the lighter in color the male used the lighter the pullets will be. No matter what shade of color is preferred, let it be remembered that the male used for producing pullets must be lighter in shade than his mates and that his barring must be as near to perfection as possible. He must be well barred to the skin and free from all tendency toward white undercolor in back. When success in producing high-class exhibition females is attained and a line established that will produce them year after year, the males from these matings are most valuable as pullet breeders.

DOUBLE MATING FOR COCKERELS.

For producing males that will win in strong competition, select fine large females in shades of color considerably darker than Standard color. These females must be entirely free from any bad color. They must have fine, close, regular barring, running to the skin. It is quite useless to hope to produce good males, or in fact good fowls of any kind, from inferior females. Better by far to give all the time and attention to one pair or trio of real meritorious specimens than to hope for success that can never come from inferior stock.

After selecting these darker-colored females, place with them the finest male possible to obtain—one of perfect Standard color, marking, and undercolor. The nearer he comes to perfection in every section, the better will be his sons.

In all these matings, the barrings must be of straight, narrow type; they must be true and distinct in all the specimens used; the light-colored males must be as true in this respect as the darkest female. Each and every specimen must conform to all the demands of the Standard, as well as to the style and manner of barring.

GENERAL DEMANDS.

No fowl of any kind that is not true to its breed characteristics should be used as a breeder. The first requisite to be considered in selecting either a male or a female for these matings is to have present in each specimen a true Plymouth Rock form of the highest degree. It should always be borne in mind that the male largely influences color, while the female gives the size and general formation. A breeder that has a poor comb or deformity of any kind should never be used, and the strictest attention to proper color of eye, earlobe, beak, legs, and toes should be given. By following closely these suggestions and selecting, when it is possible, specimens that have been bred in line for males or females, as the case may be, for years, success in producing high-class Barred Plymouth Rocks should be attained.

WHITE PLYMOUTH ROCKS.

The White Plymouth Rocks are (so-called) sports from the Barred variety. There are two causes found for such a variation in the formation of the breed—first, the Black Java was part of the original foundation stock, and all solid black fowls are apt to occasionally throw white chicks; and, second, the cross of the white Asiatic fowl, for the purpose of enlarging the size, clearing the plumage, and increasing the size of their eggs, might be expected to occasionally crop out in the offspring. It is not surprising, therefore, that white fowls have been occasionally produced; the greatest surprise in their appearance is their good Plymouth Rock form.

THEIR ORIGIN.

About 1875 or 1876 Mr. Oscar F. Frost, of Monmouth, Me., had hatched from eggs laid by Barred Plymouth Rocks some white chicks that grew to be good Plymouth Rocks in shape, but white in color. These are said to have been the first that were ever mentioned up to that time as having made an appearance. As soon as it was admitted that such was the case, others through the country claimed to have had the same experience in their flocks. In almost every case they seemed to come from either the Essex or the Drake strain of birds.

The originator of what was known as the Essex strain of Barred Plymouth Rocks claims to have crossed into his flock a fowl called the White Birmingham. It is claimed by some that this is the true reason for this strain producing white fowls. There was considerable activity in an effort by those who disliked the idea of allowing a white fowl to be called a Plymouth Rock to have them named Birminghams, but the satisfactory establishment of their descent from the Plymouth Rocks, the evidence that they reproduced their qualities, and the presence of as good form as could be shown in the Barred variety secured to them their right to the family name.

When we speak of this variety as a sport from the Barred Rocks, we mean that eggs laid by the Barred variety produced these white specimens, and that this was simply the reappearance of ancestral characters through the action of well-known laws of heredity. It is asserted that it is not an unusual occurrence for some lots of Barred Plymouth Rocks to produce solid or almost solid black fowls. This also might be expected, since there were black as well as white breeds used for foundation stock.

When solid black fowls produce pure white offspring these are called Albinos. This is looked upon as a weakness in color of the parent birds. But when any made breed shows a tendency to "throw back" to any one of its ancestors it is called a reversionary tendency, or the going back to an ancestor. In this case the white specimen took the color of one of its ancestors and held to the shape of its immediate family.

COLOR CONDITIONS.

We must not have the impression that the first of these white sports had good clear color, for they had not. It took several years of great care in mating to get them started toward breeding true. This, however, is not remarkable, since our very oldest known breeds will not breed absolutely true at all times. A new variety could not be expected to do better than those which have been carefully selected for many years.

As the result of patience, skill, and good judgment we now have the White Plymouth Rock, which is of as good form as can be found in the Barred variety. They fully equal them in size, and their color is as pure white as is seen on any fowl. Many of them are pure white in plumage, with beaks, shanks, and feet of beautiful orange yellow, giving the combination of color so popular in this country.

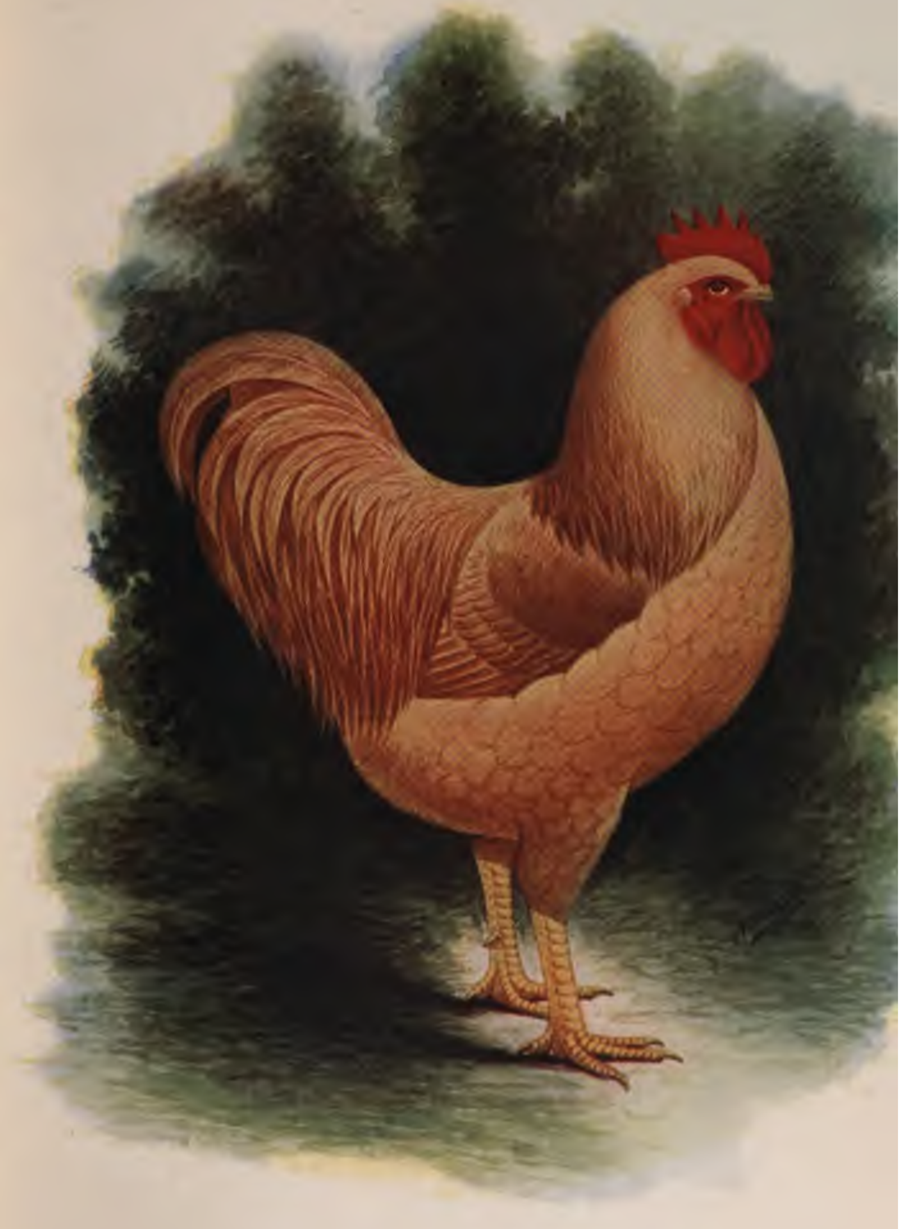
PROPER MATINGS.

As stated before, all Plymouth Rocks, no matter of what variety-color they may be, must have the same shape. There is but the one true Plymouth Rock shape. An effort has been made to state plainly in previous pages just what this should be, and the first and most essential requirement is that all specimens of the white variety that are used for breeding shall be most perfect in Plymouth Rock shape. As there are but two conditions of quality to be considered—good shape and pure color—it is of the greatest importance to have them both as near to perfection as possible.

Fine large specimens of most perfect Plymouth Rock shape which are pure white in color and whose head, comb, and eyes are right up to Standard demands are the only kind worth consideration for breeding purposes. With these they must also have a good, richly colored, yellow beak, shanks, and feet. It is simply folly to hope to produce good high-class show specimens from under-sized, ill-shaped, poor-colored specimens. If simply handling them for eggs, select the best egg producers and keep them; but if breeding for exhibition, do not waste time trying to succeed with even fair quality. To succeed it is necessary to have the very best.

WHITE AS A COLOR.

The pure white plumage of a fowl is quite as difficult to obtain in perfection as any of the variety colors; yellowish or creamy tints, also black specks, will show in the feathers of the very best strains. Often



BUFF PLYMOUTH ROCK MALE.

when the surface plumage appears white, the undercolor will show the creamy tint. This discoloration is often prevalent in the quills of the wings and tail feathers, also in the back just in front of the tail. The presence of the creamy or yellow tint destroys a specimen for either breeding or exhibition purposes.

White fowls that have this yellowish cast in plumage are usually the most vigorous of the flock, while those that are absolutely pure white are often rather delicate as compared with the others. It is frequently the case that sprinklings of black will be found in parts of the plumage of the whitest specimens. These small spots of black look like sprinklings of pepper on some of the feathers. This most usually shows itself in wing flights or on back plumage. At times solid black feathers will show themselves; usually they crop out on the back or on the body just under the wing bow.

When selecting breeders for market purposes, for both eggs and market poultry, the largest and most vigorous specimens, without regard to yellowish cast in plumage, should be selected. Size, strength, and constitution should be the first consideration for producing stock for eggs, broilers, and market poultry. But when selecting for production of exhibition specimens use only those that are absolutely white to the skin, including quill feathers.

BUFF PLYMOUTH ROCKS.

The whole fraternity of poultry fanciers thought the advent of the new white varieties marked the full tide of success with fowls; but when the facts as to new buff breeds shone upon us, all interested in fancy fowls, to a greater or less extent, went, as might be said, color mad. Even to this day men will argue the question as to the shade of color, and present as samples of true buff color specimens ranging from lemon yellow to snuff brown, some one calling each shade the proper color.

It is acknowledged that there have been two original strains of the Buff Plymouth Rocks—the one called the Wilson strain, the other the Fall River strain. The Wilson strain originated with Mr. J. D. Wilson, of Worcester, N. Y., from Buff Cochins and Light Brahmas. The Fall River strain was produced by Mr. R. G. Buffington, Dr. Aldrich, and others, at Fall River, Mass., by crossing Rhode Island Reds and White Plymouth Rocks; also from selected Rhode Island Reds that had fairly good Plymouth Rock shape and buff color. The Rhode Island Reds selected for this purpose had more or less Plymouth Rock blood in their veins.

These early productions had black tails, dark flights, almost red body color, and very red wing bows. The Wilson strain had the better size and color; the Fall River strain better form. From the union of the two, those interested have produced a fowl that has the true breed characteristics, also good size and color. Few varieties have advanced so fast as these in real quality of both form and feather.

It is not unusual to see male birds of true color, through and through, while in females true color is so common as to be practically established; yet in some cases the color is thin and washy, and in others too deep or too red. But even with these faults their handlers have shown great skill in bringing them to their present condition in so few years, notwithstanding an undercurrent of hereditary forces tending toward many shapes and colors which came through their original make-up.

It can not be too strongly emphasized that all Plymouth Rocks must have the same shape, form, and breed characteristics. That the shape makes the breed is ever true, while color is simply the emblem of the variety. In all solid-colored fowls we have the right to hope for better form than in particolored ones. For this reason we should expect the most perfect Plymouth Rocks in this variety.

In mating these fowls for producing the highest class specimens, first of all select good size, vigor, and Plymouth Rock shape; always looking well to the quality of comb, eyes, wattles, earlobes, beak, shanks, and feet. In addition, have good even color as described below.

BUFF COLOR AND HOW PRODUCED.

The Standard calls for one even shade of true golden buff throughout. This is a most simple proposition that tells us in the plainest possible language that all buff fowls must be a true buff of golden hue; not lemon buff, nor reddish buff; neither shall it be reddish brown nor snuff brown, but true and simple "golden buff" which approaches a true colored chamois skin or one of our American (yellow) gold coins.

With buff fowls, more than those of any other color, the greatest attention must be paid to the color of the male. It is almost a hopeless task to try to produce good true-colored buff chicks from poorly or thin-colored males. The color of the male that is to be used for a breeding fowl should be very true and even—neither thin nor ticked. The color should be filled in very closely and dense, so as to make a strong, solid, true surface color that should be well sustained by undercolor to the skin, a shade or two lighter than surface color, but just as true.

It is erroneous to give undue credit for color qualities to the thin-colored specimens which are so weak in color as to look like a faded-out lemon color, and so thin as to allow the white undercolor (which is usual in such specimens) to show through. Such is not buff color. It has no more right to be called true Standard buff than has the red or snuff-brown shades.

After selecting a true-colored male that has the same even shade of buff all over—allowing for the glossy finish of neck and upper portions of body, including wings, which must be of the same even shade—mate him with the very truest colored females that it is possible to obtain. Always follow this rule if possible: Have the females of the true golden hue of buff as called for in the Standard, while the color of the male's breast plumage should be one or two shades deeper in color than the breast of the females.

Never mate deep red-colored specimens with paler lemon-colored ones. This will bring mixed or mossy surface color. The way to establish good, lasting buff color of the proper shade is to mate good, true buff colors together year after year till this color is thoroughly established in the blood, when it can be depended upon to reproduce itself.

The most constant defects in the buff color are the red that comes on the wing bow, the black that comes on the tail and wings, and the white that comes in the tail, wings, and undercolor. Some one of these is always present. A surplus of black seems to drive the others out. Years of experience have taught those who have bred buff fowls that it is a good plan to confine the black to the tail feathers and to hold just a little of it hidden away in the main tail plumage. This can be done, and it helps to fortify against the white. All specimens having the red wing bows should be discarded and used simply as market poultry.

FAULTS TO AVOID.

By all means keep your Plymouth Rocks up in size. Have them look their character. A small-looking specimen which is so fat as to pass muster underweight demands is simply a heavyweight small bird. Breed them to good size. Have them look to be full-sized Plymouth Rocks. It is the good, reasonable size that is needed—not over fat, so as to weigh in at Standard weights. Poor combs are entirely too prevalent. Pay more attention to all head portions, for they count largely for or against the specimen. All fowls should have good, bright, rich-colored eyes. Nothing detracts more from their beauty than poor shape or poor color of eyes. Stamp out the tendency to feathers on shanks or between the toes. Destroy these by sending all that show the slightest tendency to this defect to be market poultry.

The Rhode Island cross still shows its presence by marking some of the hackle feathers with black. Watch for this continually and get rid of it. Keep clear of all unevenness in color and do not allow the color to run thin and light in shade; at the same time avoid the deep dark shades that properly belong to the Rhode Island Reds. Select the true-shaped, true-colored specimens and hold to them and breed for better results, thus building true and well as the stock advances closer and closer to the line of perfection.

THE PEA-COMBED VARIETY.

One of the results of the many additions of new blood used for improving the Barred Plymouth Rock is a barred fowl with the Pea, or Brahma, comb. Such specimens came from true Plymouth Rock matings, and were fostered by several who believed the style of comb to be of advantage. As to their origin, the words of Mr. H. S. Babcock, who, more than any other person, should have the credit of their origin, are quoted. He writes:

> In searching for its origin the writer has received hundreds of letters showing that in various flocks, at sundry times and in divers places, Pea-Combed chickens have appeared, the parents being single-combed thoroughbred Plymouth Rocks. These fowls were so kept that a cross was impossible, in some cases being the only variety upon the place or in the immediate vicinity. The testimony was simply overwhelming in favor of the assertion that the Pea-Combed birds were just as pure in blood as the single-combed ones, and hence they were regarded as a "sport" of the single-combed Plymouth Rocks. A "sport" they have been called, and perhaps justly, though there appears a possibility of considering them a reversion, for it appears from considerable testimony that the single-combed Barred Plymouth Rocks had in their veins a decidedly mixed blood. For example, Mr. I. K. Felch declared in an article written about the time the Pea-Combed Barred Plymouth Rock was admitted to the Standard that a certain breeder of single-combed Barred Plymouth Rocks, acting upon his advice, had bred into his strain the blood of the Light Brahma, and that when the Light Brahma blood had been reduced to one-eighth, the resulting birds were winners. Again, a prominent breeder of Barred Plymouth Rocks told the writer that he had personally crossed into the original Essex strain a Black-red Pit Game, in order to give more vivacity to the fowls, and then had bred out the strictly Game characteristics. It was also learned that another prominent early strain had in its composition the blood of the Dark Brahma, and it is well known that the Black Java used in the making of the original Plymouth Rocks was an Asiatic fowl, and all Asiatic fowls have a tendency to produce pea combs. Inasmuch as the Brahmas, Light and Dark, are pea-combed fowls, and as Pit Games prodcue all

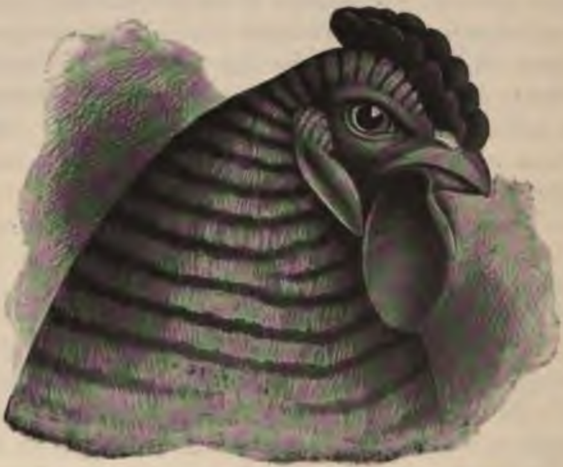


FIG. 8.—Head of Pea-Comb Barred Plymouth Rock male.

manner of combs—single, rose, nub, strawberry, and pea—and as all Asiatics have a tendency toward the production of the pea comb, it is possible that the comb upon the Plymouth Rock is due, not to sporting, which means the production of an entirely new character, one not possessed by any ancester, but to reversion, in this instance affecting the comb only of the fowls. But to one or the other cause (either to sporting or reversion) the pea comb of the Plymouth Rock must be referred, for no immediate cross for its production was ever made. The Pea-Combed Plymouth Rock is as pure in blood as its single-combed ancestor; it is a Plymouth Rock, and nothing else.

In breeding it presents exactly the same problem that the single-combed varieties present—careful mating for color and the preservation of the true Plymouth Rock type. In the barred birds the color problem is a difficult one, but not beyond the skill of a good breeder. In this variety the color demand was not forced by competition to the same high limit. For this reason good show specimens were produced from the single-mating system. If still popular at this time, it would be necessary to use the other system to keep to the present demand.

This variety never became popular as a fancy fowl, but was quite extensively kept for eggs and dressed-poultry purposes, until finally it was admitted that they were far better calculated for utility than for exhibition. This condition caused them to be dropped from the list of standard fowls, and at the present time they are seldom seen outside the confines of poultry farms, where they are much valued for their continual egg yield and quick growth for broilers and market poultry.

BREEDS ALLIED TO THE PLYMOUTH ROCKS.

THE JERSEY BLUE.

Jersey Blues are mentioned as among the very earliest productions of American fowls. They were named after the State from which they originated, and became popular on account of their prolific egg yield. Early records tell us that they are the result of a cross between the Great Malay and some one of our other breeds (name unknown), and that the product was a rather long-legged fowl, neither valued as an egg producer nor as a good market fowl. No doubt this original cross from the Malay had the long legs and inferior egg capacity, both of which belong to the Malay family. Why such a cross should be inferior as table poultry can only be accounted for on the ground of poor care or perhaps a Spanish cross.

The Great Malay of early day did not have the beautiful black-red colors of the present, nor were they the equal in many ways of our present type. As described in their advent, the Jersey Blues were large-sized long-legged fowls, of a bluish cast in plumage, weighing, when full grown, from 12 to 16 pounds per pair. All these facts point to a Malay crossed with either Black Spanish or Java.

Blue fowls, from all time, have come as the result of many crosses: Dark Brahmas crossed with Black Spanish, Minorca crosses, and pure white and pure black fowls, all have produced fowls having blue color in plumage. The entire make-up of the Jersey Blue is similar to that of the Andalusian, which is of Spanish origin, and no doubt the result of crossing a Black and White Spanish fowl, or perhaps two black fowls of different breeds, as it is a well-established fact that either cross may produce a blue specimen.

The present form and color of the Jersey Blue would rather incline one to believe that they are the result of an Asiatic-Java cross. The absence of the white earlobe shuts out the probability of a Spanish cross, while their large, heavy bodies and underformation resemble the Asiatic family. They have dark eyes, single combs, red earlobes, and smooth legs. The color of body plumage of the male is slaty blue, each feather being laced about the edge with a darker color; top plumage, including neck, back, saddle, and wings, a metallic blue-black; main tail feathers should be blue or bluish black; beak, legs, and toes of both male and female dark or slate color.

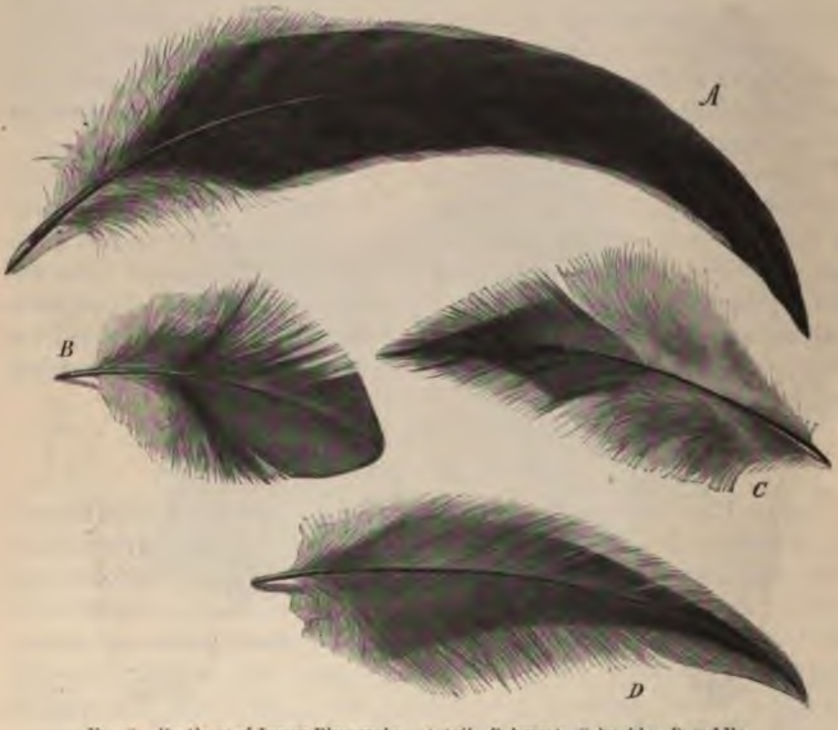


FIG. 9.—Feathers of Jersey Blue male. *A*, tail; *B*, breast; *C*, hackle; *D*, saddle.

The female should be slaty blue in color all over, each feather being laced around the edge with a darker shade (color and lacing like that of the Andalusian); the neck somewhat darker than body color; they are of good size, deep and full in breast and body; not long in legs, rather active. They produce an average number of eggs that are of a brown color (indicating that they are not of Spanish origin), medium in size, good rich flavor. In fact, they are the counterpart of the Andalusian in color and activity, while favoring the Brahma in size and shape of body. Even at this late day they show an inclination occasionally to produce chicks with some feathers on their shanks, suggesting their ancestry.

The Jersey Blue, like the Pea-Combed Plymouth Rock, was formerly allowed a place in our Standard, but so little attention was paid to its improvement that it was thought best to withdraw it from a position among those called Standard fowls and allow it to occupy the place which it so long filled among the utility fowls.

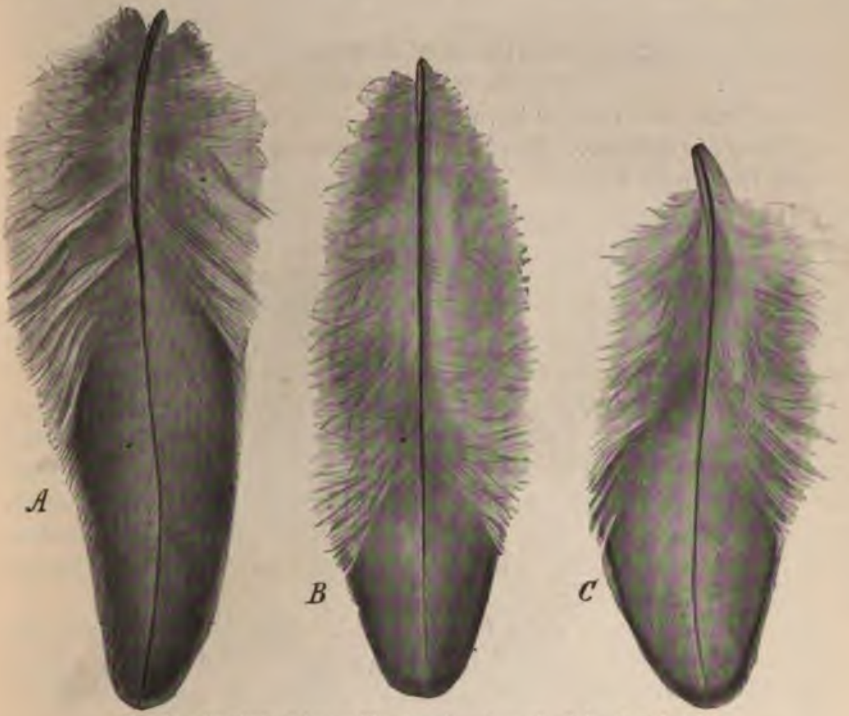


FIG. 10.—Feathers of Jersey Blue female. *A*, neck; *B*, back; *C*, breast.

THE RHODE ISLAND RED.

Few new varieties or breeds of fowls have enjoyed a more quickly gained prominence than has come to the present up-to-date Rhode Island Red. They have been brought into line by breeders known as utility men, who claim for them all requirements that go to make the general-purpose fowl. Yet, withal, we do not think that their ardent admirers claim they will produce any greater number of eggs or better eggs, or that they are any better for market poultry than others of our many American varieties. But if they lack any quality that would go to make them as good as the best it has been successfully hidden by the claims of superiority.

The Rhode Island Red is a result of continued interchanging of male birds for new blood until its present make-up combines about all the best breeds known to this country. Among these are the Malay Game and the early so-called Shanghai, the Dominique, Brown Leghorn, Brahma, Plymouth Rock, and Wyandotte. From time to time all of these have been added by one breeder or another, and specimens produced by these numerous crosses have been exchanged until all the extensive flocks of egg-producing market poultry throughout the State of Rhode Island are more or less of the same type. The Rhode Island Reds in the Fall River districts of Massachusetts have now the greater reputation.

These numerous crosses have many styles of combs, forms of body, and colors of plumage. The facts are that many flocks of these Rhode Island Reds look like the barnyard fowls found so commonly in the West; perhaps a little larger, but no more regular in color of plumage, shape of body, or form of comb. The demand for solid red males with good single combs, to be used in building up the new Buff Plymouth Rocks, prompted the breeding of them to a definite type and color. Since then more care and attention has been given to breeding in accordance with the Standard rules of the Rhode Island Red Club.

The form of the accepted (or club-adopted) Rhode Island Reds favor the Plymouth Rock. They are rather longer in back and the male has considerably more tail plumage. In size they are rather smaller than the Plymouth Rock; in constitutional vigor very strong, and, like all crossbred fowls, grow fast, feather quickly, and begin to lay rather early, for a large fowl. Their qualities are now fairly well transmitted to their offspring.

The adopted shade of color for the true-bred specimen is red for the male and a modified shade of the same color for the female. They range in color from a reddish orange to the deepest possible shade of dark red for the male, while the females range from a dark buff to a snuff brown. Only a small percentage of those produced can be expected to have the exact color of the parent bird. This uncertainty of color transmission, however, has been improved upon each year, and there can be no possible reason why this bird should not be finally guided into true breeding strains.

They have single combs, like the Plymouth Rock, also rose combs like the Wyandotte, and some are produced with the pea comb, like the Brahma. All these colors of plumage and styles of comb may be found of advantage in building up one or more useful varieties of this new breed.

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BULLETIN No. 30.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY.
D. E. SALMON, D. V. M., Chief.

TRICHINOSIS IN GERMANY.

Part I. GENERAL REMARKS ON TRICHINOSIS IN GERMANY.
By CH. WARDELL STILES, Ph. D.

Part II. A STATISTICAL REVIEW OF TRICHINOSIS IN GERMANY DURING THE EIGHTEEN YEARS 1881-1898.
By CH. WARDELL STILES, Ph. D.

Part III. EUROPEAN CASES OF TRICHINOSIS OF ALLEGED AMERICAN ORIGIN.
By CH. WARDELL STILES, Ph. D.

Part IV. BIBLIOGRAPHY OF TRICHINOSIS IN GERMANY.
By ALBERT HASSALL, M. R. C. V. S.

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1901.

(B. A. I. 168.)

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
Washington, D. C., July 13, 1900.

SIR: I have the honor to transmit herewith a report on Trichinosis in Germany, which has been prepared by Dr. Ch. Wardell Stiles, zoologist of this Bureau, who was detailed by yourself as agricultural attaché to the Embassy of the United States at Berlin during the years of 1898 and 1899, and to recommend its publication as Bulletin No. 30 of the Bureau of Animal Industry.

The object of Dr. Stiles's investigations was threefold: (1) To ascertain so far as possible the value of the microscopic inspection of pork products in Germany, as shown by German health statistics for 1881 to 1898, inclusive; (2) to ascertain whether any cases of trichinosis have definitely been traced to American pork having upon it the inspection stamp of this Bureau; (3) to investigate the charges brought in Germany against American meats.

The information contained in this report is from German sources, and to a large extent from official reports. It appears evident that a microscopic inspection is not the best method of securing immunity from trichinosis and that the outbreaks of this disease which have been charged to American pork have not been caused by pork from this country, or at the most are of doubtful origin.

Respectfully,
D. E. SALMON.
Chief of Bureau.

Hon. JAMES WILSON,
Secretary of Agriculture.

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TRICHINOSIS IN GERMANY.

SUMMARY OF REPORT.

PART I.—GENERAL REMARKS ON TRICHINOSIS IN GERMANY.

Historical summary of the discovery of trichinosis.—When trichinæ were first discovered, it was not suspected that they were of importance to medicine, still less to international politics. First described in man (1835) in England; then in hogs (1847) in America; recognized as cause of disease (1860) in Germany (p. 9).

A knowledge of the *life history of the parasite* is necessary to understand the problems which arise. The parasites are transmitted only by use of raw or rare meat, chiefly pork, and cause the disease known as trichinosis (p. 10).

Various *preventive measures* have been proposed—public warnings, the cooking and curing of meat, and microscopic inspection (p. 11).

Objects of present report.—To judge the value of the microscopic inspection, as shown by German health statistics for 1881–1898, in order to inquire whether this system gives a protection proportionate to its expense, hence whether we should introduce it into this country; also to see whether any cases of trichinosis have been definitely traced to American pork bearing the inspection stamp of this Bureau, thus inquiring whether the attacks upon American pork printed in the German agrarian press have any foundation in German health and mortuary statistics (p. 12). The German law prohibits the sale of trichinous pork, regardless of the condition of the parasites, whether dead or alive.

International phase of subject.—American pork exported to Germany about thirty years ago. German decree of 1880 prohibited sausage and chopped meats (p. 15). Decree of 1883 prohibited all pork (p. 15). Decree of 1891 admitted American pork under certificate (p. 16), but did not provide that latter was a valid sanitary document. Prussian circular of 1892 calling for reinspection of American meats; this circular the beginning and source of trouble in Prussia (p. 17). Department of Agriculture changed its export inspection stamps (1893) and certificates (1896) (p. 19). Local restrictions. Position of two Governments summarized (p. 19). Further scientific discussion will not change the present situation, as the meat question has passed its scientific stage and is now a political and economic question (p. 20). United States Department of Agriculture refused (1898) certificate for fresh pork (p. 21). Secret Prussian circular (1898) to prevent United States consuls from obtaining information upon conditions of health and disease; its hygienic bearing (p. 21).

Local regulations.—Examples and discussion.

Number of trichina inspectors in Germany.—Divided into two classes, and variously estimated from 25,000 to 100,000. More than soldiers in the United States Army prior to Spanish-American war (p. 28).

Expense of trichina inspection in Germany.—Exact estimate impossible, but approximately at the rate of 1 mark (23.8 cents) per hog; annual kill, 14,000,000 hogs. At this rate would cost $3,275,000 in addition to materials, rent, loss of meat, etc. Thus the expense of a general inspection for either Germany or America would cost more than the entire present appropriation for the United States Department of Agriculture.

Over 200,000,000 pounds of American pork were exported to Germany during the fiscal years 1892–1898.

PART II.—A STATISTICAL REVIEW OF TRICHINOSIS IN GERMANY DURING THE EIGHTEEN YEARS 1881–1898.

Summary for the Empire (p. 35), giving general information and conclusions based upon the detailed statistics which follow.

The statistics given in this report are minimum figures, since, in common with all medical statistics, they represent cases reported, not cases diagnosed or undiagnosed.

Prussia.—Summary (p. 41). Detailed statistics by years and outbreaks (p. 43). Summary by districts (p. 99).

Saxony.—Summary (p. 133). Detailed statistics by years and outbreaks (p. 134).

German States, exclusive of Prussia and Saxony.—Summary (p. 144). Detailed statistics by summary, years, and outbreaks for Bavaria (p. 146), Brunswick (p. 147), Bremen (p. 149), Alsace-Lorraine (p. 150), Hamburg (p. 152), Lübeck (p. 153), and the rest of Germany (p. 153).

PART III.—EUROPEAN CASES ALLEGED TO HAVE BEEN DUE TO AMERICAN PORK.

List of cases, with references to discussion. It is shown that no evidence has as yet been presented in Germany to prove that a single case of trichinosis has ever been traced to American certified pork; while the evidence thus far presented in support of the claims that cases of trichinosis in Europe before 1892 have been traced to American pork is in some cases absurd, in others incomplete (p. 156).

PART IV.—BIBLIOGRAPHY.

Contains a list of the literature cited.

Acknowledgments.—The author is indebted to several persons for aid in the present work. He especially wishes to express his obligations to the members of the staff of the Surgeon-General's Library, who have been exceedingly kind in obtaining for him books which were otherwise inaccessible.

After all of the literature had been collected it was deemed advisable to have every reference verified, so far as possible, by some other person; and the author is indebted to Dr. Hassall, Mrs. Towne, Miss Tayler, and Miss Oberly for this work. It is believed that errors in bibliographic citation are thereby practically eliminated.

Acknowledgments are also due to Mr. Frank H. Hitchcock and Dr. A. M. Farrington for tables of exports given on p. 33.

Finally, but by no means least, the author wishes to express his appreciation of the courtesies extended to him in Berlin, Germany, by the Imperial health office and by the Royal library in permitting him to consult several published reports which could not be obtained in Washington.

Quotations.—It should be explained that where quotations are made they are usually given in the original German, with a translation or a short summary in English. The German is quoted for the simple reason that, if given in English alone, with many persons the question would arise in numerous instances whether the statements in English were not exaggerated purposely in translating. To protect him-

Part I.—GENERAL REMARKS ON TRICHINOSIS IN GERMANY (Stiles).

Historical summary of the discovery of trichinosis.[1]—In 1835 Prof. Richard Owen described as a new parasite of man, under the name *Trichina spiralis*,[2] certain small worms which were found by Paget, then a medical student, in a cadaver in a London dissecting room. At that time little or no importance was attached to the discovery, for the organisms were looked upon as zoological curiosities rather than as the cause of disease, while the idea that these worms would ever play any rôle in national sanitary matters or in international commerce or diplomacy was not even mistrusted.

Apparently the earliest cases observed in the United States of infection by this parasite were in the negro in 1841–42 by Professor Chazal, of Charleston, S. C., but the cases were not recorded until 1881 (Glazier, 1881, p. 173). The earliest published record for America seems to be the cases observed by Dr. Bowditch (1842, 1843, 1844), who found the parasites four times—twice in 1842, once each in 1843 and 1844—in muscles of human cadavers in Boston, Mass. Since then about 900 cases of the disease have been collected for this country.

In 1847 Prof. Joseph Leidy (1847), of Philadelphia, found the same species of worm in American pork.

Herbst (1851–52), an experimental physiologist in Göttingen, appears to be the first who experimented upon the life history of this parasite. In the summer of 1848 he found what he supposed to be trichinæ in the muscles of a dog, and fed the infected meat to a badger; when the latter died, in 1850, its muscles contained encysted worms. The badger meat was then fed to three young dogs, and seven weeks later two of them were examined and found to be trichinous. Herbst's ideas regarding the parasite were rather confused, however, and his views and experiments have been more or less ignored or forgotten.

Not until 1860 was the importance of the worm as a factor in pathology fully recognized, when Professor Zenker (1860, pp. 561, 562), of Dresden, showed it to be the cause of a disease which has since been named trichinosis, and which prior to Zenker's observations had been confounded with typhoid fever and other maladies. The brilliant observations and experiments of Zenker, Leuckart, Virchow, and others then placed the medical profession in possession of detailed data concerning the life history of, and source of infection by, the parasites under discussion; also the symptoms, duration, and other clinical details of the disease, and the preventive measures to be adopted.

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[1] See also Cobbold (1866, p. 3027), who summarizes the disputed points regarding the early history of the worm.

[2] Now more properly known as *Trichinella spiralis*.

Then followed the noted years of 1860–1866, when certain European States, more particularly Prussia and Saxony, experienced a number of outbreaks of trichinosis. The medical and lay press of those years were filled with articles upon the subject, some authors advancing the wildest kind of speculation and showing almost a panic for fear of the malady; other authors went to the other extreme, claiming that the parasites were harmless, while the more thoughtful writers attempted to introduce safeguarding measures by which the public could be protected from infection.

Life history of the parasite.—A general idea of the life history of the parasite is necessary to a proper understanding of the source of infection, more particularly since certain erroneous ideas upon this subject have gained more or less credence. Briefly stated, the essential points to be held in mind are as follows: Three stages of the parasite are to be distinguished, namely, the embryo, the encysted larva, and the adult. The encysted larval stage has been encountered in the meat (muscles) of about twenty-five different mammals; it occurs most frequently in omnivorous and carnivorous mammals (man, hogs, rats, mice, cats, bears, etc.), and is found in the normally nonmeat-eating animals (cattle, hares, rabbits, gophers, etc.) only (*a*) when trichinous meat has been fed to them purposely, or (*b*) when from lack of other food these animals eat meat which happens to be trichinous, or (*c*) when they happen to eat a piece of trichinous meat accidentally. From present scientific data trichinæ may live in practically any mammal, but only the meat-eating mammals are at all likely to be found infected.

Trichinæ do not occur in any stage in any birds, reptiles, amphibia (frogs), fish, or invertebrates (insects, snails, etc.), except in isolated cases, where certain of these animals are subjected to infection under abnormal conditions in laboratories.

Since the encysted larva is the *infecting stage*, it will be seen that it is not necessary to take into consideration, from a point of public hygiene, any animals except the omnivorous and carnivorous, and from a practical standpoint the only ones, with isolated exceptions, which need be considered are man, hogs, rats, and dogs.

When any one of these animals eats any other one of them or one of its own kind (when a man eats pork, or a hog or dog eats a rat, for instance, or when a hog is fed on the offal of another hog) and the animal eaten happens to be trichinous, the conditions for infection, unless they have been guarded against, are present. If a hog eats a rat which is infected with live encysted larvæ, the latter escape from their capsule, become adults within a few days, and multiply in the intestinal tract of the hog. Numerous embryos, which are born of the adults, wander to the muscles of the hog, where they develop into larvæ and become encysted. If now the hog is slaughtered and the meat eaten by a man without proper precautions (cooking or curing), the man in turn becomes infected.

This brief summary of the life cycle will suffice for the purposes of this report. Stress may, however, here be laid upon the following facts in order to correct popular errors: (1) Trichinæ can not develop in an animal unless the latter has eaten live trichinæ; (2) it is inconceivable that any animals may after death (as, for instance, after being slaughtered) become infected with trichinosis; (3) there is not the slightest danger of trichinosis from eating meat infected with trichinæ in case the parasites have been killed by thorough cooking or by thorough curing; (4) the presence of trichinæ *per se* can not be considered as a justification for destroying trichinous meat; it is only when the parasites are present in such enormous numbers that they have brought about extensive pathologic changes which in themselves would lead to the destruction of the meat that a sanitary official would be justified in destroying trichinous meat not belonging to him; in this case, however, it is the extensive pathologic alteration, and not the trichinæ, which should be considered; (5) the prejudice against eating trichinous pork which has been properly safeguarded (thorough cooking or thorough curing) is a pure sentimentality with no logical basis, for cooked or cured trichinæ are no worse than slaughtered hogs, broiled live lobsters, broiled oysters, or any other animal eaten in killed or semiliving (raw oysters) state; furthermore, the person who is prejudiced against eating properly safeguarded, slightly infected trichinous meat should, in order to be consistent, never touch any meat at all, for from 30 to 90 per cent of all hogs, according to locality, and many sheep, cattle, and horses are infected with other muscle parasites (Sarcosporidia) which are frequently even larger than trichinæ; (6) to eat raw pork at any time, or in any country, always involves a risk of infection with trichinosis, no matter whether the meat has been inspected microscopically or not.

Preventive measures proposed.—The measures proposed and adopted at various times and in various places looking to the prevention of trichinosis are essentially the following:

(1) Notices have been issued by sanitary boards and by the police calling attention to the danger arising from eating raw pork, and the public has been warned to cook the meat thoroughly before eating it.

(2) It has been shown that certain methods of curing pork kill the worms, and hence render the disease nontransmissible to man, and these methods have been adopted in some places.

(3) A system of microscopic inspection of slaughtered hogs has been

instituted. The diaphragm and other seats of predilection of the parasite are examined by persons especially trained in this work, and in case trichinæ are found the hog is condemned and disposed of according to the specific regulations in force. The regulations of some localities provide for the burial of the hog; of others, for its rendering; in a few cases (Spain) the meat has been thrown into the sea; and in some places the meat is first cooked or salted, and then sold. This inspection system, which originated in Germany, has now become quite general in that country—more particularly in Prussia and Saxony—and has extended in some degree to certain other parts of Europe—Austria, Denmark, and elsewhere; and scarcely a year passes that some American writer does not advocate its introduction into the United States, calling upon the Department of Agriculture to inspect microscopically all the pork placed on the American market.

Objects of the present report.—The writer originally had several objects in view in preparing a report upon the trichinosis of Germany. The study was undertaken partly in connection with the demand that the trichina inspection should be introduced into the United States and partly in connection with the diplomatic correspondence between Germany and America regarding the "American pork question." One of the chief points in connection with the subject was a study of the local regulations in Germany regarding the trichina inspection.

In view of the pending legislation, however, it seems inadvisable to publish the report in the form first designed, for if, as is to be hoped, the Imperial meat-inspection bill is adopted in the near future a detailed discussion of the local regulations would be not only superfluous but would engender bad feeling and lead to a more critical condition than exists at present. As the local regulations may be expected to be matters of the past upon the enforcement of the proposed new law, it appears better to bury the mass of complaints against these regulations with the regulations themselves and begin on a new basis with the new law. Should the bill fail to pass, the local regulations may then be discussed.[1]

However, since the American claims regarding local regulations have been much misunderstood, it may be well to refer to them briefly, giving a few examples (see p. 25).

Thus the original plan of the report has been somewhat changed, but there are certain grounds which lead to the present publication of a portion of the material collected:

First. In view of the demand referred to—namely, that the United States Department of Agriculture shall inspect microscopically all American pork before it is placed on the market—it is well to examine in detail the results of this system of inspection as carried on in Germany; and, taking into account its expense, to inquire whether it is a practical system in public hygiene, giving a protection proportionate to its cost, or whether we can better protect ourselves against trichinosis by other methods, and use to better advantage for some other purpose the money required for a general microscopic inspection. In order to decide the question properly, the outbreaks of the disease in Germany for the eighteen years 1881-1898 have been studied in detail; the German outbreaks earlier than 1881 have also been compiled, but not with so much detail as the cases since that date. The American outbreaks thus far recorded have also been compiled and will be used in comparison.

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[1] Note added in proof July, 1901: A compromise bill was finally adopted.—C. W. S.

Second. The question naturally arises whether the microscopic inspection can be guaranteed, either from a theoretical or a practical standpoint. Although this subject has often been discussed before, it is believed that a systematic study of the German outbreaks of trichinosis may throw additional light upon this point (which is frequently of legal as well as of hygienic importance), since it was in Germany that the system of microscopic inspection was conceived and nourished.

Third. There appears to be a systematic attack upon American meats carried on by certain German newspapers and individuals. It is repeatedly asserted that our pork is dangerous; that it is very likely to produce trichinosis; it has even been stated that trichinosis is the usual consequence of eating American pork; police and other local authorities publish warnings against our meats; in some localities persons selling American meats are compelled to display signs in their shops stating the origin of the goods; local regulations of alleged sanitary nature, but of a most exasperating character, are promulgated; butcher associations turn into amateur sanitary societies, and after discoursing at length upon the great dangers of "Yankee" products and the unheard-of frauds practiced by men who are pictured as almost criminal, they incidentally mention that American competition (while furnishing meat to the working classes) is injuring their own trade; American inspectors are accused of receiving bribes, etc.

It is not the intention to enter upon a polemic with the German newspapers, but rather to examine the questions: What true sanitary basis in German medical statistics can be found for these attacks? and Why is it that it is the butchers and certain politicians who have become so concerned about the alleged sanitary dangers connected with American meats while the German medical profession remains so quiet?[1]

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[1] An appeal to the German physicians has recently been made in a circular signed by a Hamburg butcher. It is rumored that this sensational circular was written by a certain lawyer who is a member of the anti-American element in the Reichstag.

The proposition for study may be expressed about as follows: How far do these newspaper polemics find support in the medical statistics? or, in other words, How many cases of, and deaths from, trichinosis in Germany have been definitely traced to eating American pork? How do these figures compare with the cases and deaths due to meat microscopically inspected in Germany and declared to be free from trichinæ? and How do the trichinosis statistics in Germany since the reintroduction of American pork (1892–1898) compare with the statistics for the years (1883–1891) when its importation was prohibited?

The inquiry is purely objective, hence it should offend no one. It must necessarily be based upon scientific and medical reports originating in Germany (for the most part official), and it is not clear how anyone in Germany can object to summarizing the subject upon German evidence. It pertains to the relations of an American product to the health of the German people, and it can not be expected that anyone in America will object to such a study if it is conducted in a proper spirit.

It may here be pointed out that there are two distinct points involved in connection with American-cured pork, namely: (1) Are trichinæ present in these goods? (2) If so, have these trichinæ proved dangerous from a standpoint of public hygiene? The first question will not be discussed at present, since it is somewhat foreign to the main issue. It is, in a certain sense, an important legal question from the German standpoint, for paragraph 367 of the German penal code provides that "*Whoever sells or offers for sale adulterated or spoiled drinks or edibles, especially trichinous meat, shall be fined not exceeding 150 marks, or punished by imprisonment.*" This law,[1] be it noticed, does not take into account the question whether the trichinæ are dead or alive—incapable or capable of reproduction—hence whether the trichinous pork is infectious or noninfectious. The law in question is not, therefore, entirely free from criticism when viewed from the standpoint of practical public hygiene.

The present bulletin deals primarily with the *practical hygienic side* of the subject, viewed in the light of experience as presented by German evidence; hence it is not the question as to whether trichinæ have been found which interests us at present, but whether experience has shown American pork in Germany to be an infectious and dangerous article of everyday food.

Trichinosis as an international question between Germany and America.—A detailed review[2] of this subject is not necessary for the purpose of this article. It will, however, be useful to the reader to bear certain dates in mind. Roughly speaking, the exportation of American pork to Germany began some thirty years ago. In 1880, Germany issued the following decree prohibiting our sausages and chopped meats:[1]

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[1] The Saxon law, on the other hand, permits the sale, under certain conditions, of meat when the hog is but slightly infected with trichinæ; the new draft of the Imperial law does the same.

[2] For some of the correspondence which has passed between the two Governments, see Foreign Relations of the United States for the years in question.

We, William, by the grace of God German Emperor, King of Prussia, etc., decree in the name of the Empire, the assent of the Bundesrath having been obtained, what follows:

1. The importation of chopped or similarly and otherwise prepared pork and of all kinds of sausages from America is prohibited until further notice. The importation of entire hams and of sides of bacon is not included in this prohibition.

2. The Imperial Chancellor is empowered to permit exceptions to the prohibition and to provide for the measures of control thus rendered necessary.

3. This decree takes effect on the day of its promulgation.

(L. S.) (Signed) WILLIAM.
VON BISMARCK.

In March, 1883, all American pork was excluded by the following decree:

Ordinance concerning the prohibition of the importation of pigs, pork, and sausages of American origin, of March 6, 1883.

We, William, by the grace of God Emperor of Germany, King of Prussia, etc., decree in the name of the Empire, and with the consent of the Bundesrath, as follows:

SECTION 1. The importation of pigs, pork (including bacon), and all kinds of sausages of American origin is prohibited until further notice.

SEC. 2. The Imperial Chancellor is empowered, by applying the necessary precautionary measures, to permit exceptions to be made to this prohibition.

SEC. 3. The ordinance of the 25th June, 1880, concerning the exclusion of American pork and sausages (Im. Law Gazette, p. 151) is abolished.

SEC. 4. The present ordinance goes into force after the expiration of the thirtieth day after its publication.

Given under our hand and the imperial seal.

(Signed) WILLIAM.
VON BISMARCK.

BERLIN, *March 6, 1883.*

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[1] Wir Wilhelm, von Gottes Gnaden Deutscher Kaiser, König von Preussen u. s. w., verordnen in Namen des Reichs, nach erfolgter Zustimmung des Bundesraths, was folgt:

1. Die Einfuhr von gehacktem oder auf ähnliche Weise zerkleinertem oder sonst zubereitetem Schweinefleisch und von Würsten aller art aus Amerika ist bis auf weiteres verboten. Auf die Einfuhr ganzer Schinken und Speckseiten bezieht sich das Verbot nicht.

2. Der Reichskanzler ist ermächtigt Ausnahmen von dem Verbote zu gestatten und die deshalb erforderlichen Controlmassregeln zu treffen.

3. Gegenwärtige Verordnung tritt mit dem Tage ihrer Verkündung in Kraft.

Urkundlich unter Unserer höchsteigenhändigen Unterschrift und beigedrucktem Kaiserlichen Insiegel. Gegeben Bad Ems, 25 Juni, 1880.

(L. S.) WILHELM.
VON BISMARCK.

By the decree of 1891, following the Saratoga convention, American hog products were readmitted with the understanding that the United States Department of Agriculture should inspect them microscopically before shipment.

The decree of 1891 reads:[1]

Decree repealing decree excluding American pork.

We, William, by the grace of God German Emperor, King of Prussia, etc., decree in the name of the Empire, the assent of the Bundesrath having been obtained, what follows:

SECTION 1. The decree respecting the prohibition of the importation of swine, swine flesh, and sausages of American origin, of March 6, 1883 (Imperial Law Gazette, p. 31), ceases to be of force for living swine, as well as for such products as are provided with an official certificate stating the flesh has in the land of origin been examined pursuant to the rules in force there, and has been found free from qualities injurious to health.

SEC. 2. The Imperial Chancellor is empowered to adopt appropriate measures for the control of the character of the swine flesh imported from America.

SEC. 3. This decree enters into force on the day of its publication. In testimony whereof our own proper signature and the imperial seal are hereto affixed.

Done at Castle Schwareznau the 3d of September, 1891.

(Signed) WILLIAM.
von Caprivi.

The United States Department of Agriculture instituted a microscopic inspection; boxes or tierces containing goods inspected for trichinæ were provided with white stamps consecutively numbered. For a given number of stamps (5 to 50 or more, according to circumstances) a white "Certificate of inspection" was issued. These were the same as the "Interstate certificates," except that they bore across their face in red ink the words "Microscopically examined in addition to regular inspection." The numbers of the stamps were given on the left margin of the certificate, so that the German customs authorities might control the boxes shipped under a given certificate. It was thought that this arrangement, made at great annual outlay by the United States Government and without any expense either to the exporter or the importer, would place the trade upon a firm foundation.

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[1] [REICHS-GESETZBLATT—No. 26.]

Inhalt: Verordnung, betreffend die Einfuhr von Schweinen, Schweinefleisch und Würsten amerikanischen Ursprungs, S. 385.

(Nr. 1975.) Verordnung, betreffend die Einfuhr von Schweinen, Schweinefleisch und Würsten amerikanischen Ursprungs, vom 3. September 1891.

Wir, Wilhelm, von Gottes Gnaden Deutscher Kaiser, König von Preussen, 2c., verordnen im Namen des Reichs, nach erfolgter Zustimmung des Bundesraths, was folgt:

SECTION 1. Die Verordnung, betreffend das Verbot der Einfuhr von Schweinen, Schweinefleisch und Würsten amerikanischen Ursprungs, vom 6. März 1883 (Reichs-Gesetzbl., S. 31) tritt für lebende Schweine, sowie für solche Erzeugnisse ausser Kraft, welche mit einer amtlichen Bescheinigung darüber versehen sind, dass das Fleisch im Ursprungslande nach Massgabe der daselbst geltenden Vorschriften untersucht und frei von gesundheitsschädlichen Eigenschaften befunden worden ist.

SEC. 2. Der Reichskanzler ist ermächtigt, zur Kontrole der Beschaffenheit des aus Amerika eingeführten Schweinefleisches geeignete Anordnungen zu treffen.

SEC. 3. Gegenwärtige Verordnung tritt mit dem Tage ihrer Verkündung in Kraft.

Urkundlich unter unserer höchsteigenhändigen Unterschrift und beigedrucktem kaiserlichen Insiegel.

Gegeben Schloss Schwarzenau, den 3. September 1891.

(L. S.) WILHELM.
von Caprivi.

It should, however, be noticed that while the Imperial Government recognized the American certificates *as valid documents, on the basis of which American pork should be permitted to pass the German customs (after the duty was paid) no agreement was made by which any kingdom or local authority in the German Empire was obliged to recognize the American certificates of inspection as documents of sanitary value.*[1] This important point having been overlooked, no little surprise was caused among American officials when the following Prussian ministerial document appeared:[2]

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[1] Rusak, 1897, in his report for 1892–1894, R.-B. Stade calls attention to this fact. See p. 127 of the present report (italics).

[2] Cirkular an sämmtliche königl. Regierungs-Präsidenten und an den königl. Polizei-Präsidium in Berlin vom 21. Mai 1892, betr. die Untersuchung auf Trichinen der aus Amerika importirten Schinken und Speckseiten.

Durch die kaiserliche Verordnung vom 3. September 1891 (R.-G.-Bl., S. 385) ist das Verbot der Einfuhr von Schweinen, Schweinefleisch und Würsten amerikanischen Ursprunges für lebende Schweine unbedingt, für Schweinefleisch und Würste insoweit ausser Kraft gesetzt worden, als diese Erzeugnisse mit einer amtlichen Bescheinigung darüber versehen sind, dass man sie im Ursprungslande nach Massgabe der dort geltenden Bestimmungen untersucht und frei von gesundheitsschädlichen Eigenschaften befunden hat.

Bald nach dem Erlasse der Verordnung wurden von verschieden Seiten Zweifel aufgeworfen, ob sich nicht unter den aus Amerika eingehenden Sendungen von Schweinefleisch, wenn sie auch von vorschriftsmässigen Bescheinigungen begleitet seien, dennoch manche nicht untersuchte Stücke befinden möchten, und ob ausserdem die amerikanischen Zeugnisse auf volle Zuverlässigkeit Anspruch machen könnten. Die in Folge dessen an manchen Orten ausgeführten Nachuntersuchungen haben diese Zweifel als begründet erwiesen; in zahlreichen Fällen hat man hierbei amerikanische Speckseiten und Schinken mit Trichinen durchsetzt gefunden, die zum grossen Theil noch lebensfähig waren.

Unter diesen Umständen haben wir im Interesse der Gesundheitspolizei Ermittelungen über die Durchführbarkeit einer Nachuntersuchung des aus Amerika eingeführten Schweinefleisch u. s. w. angeordnet und sind dadurch zu folgendem Ergebnisse gelangt. Von der Nachuntersuchung amerikanischer Würste wird abzusehen sein; sie ist mit mancherlei Schwierigkeiten verknüpft, und hat über dies, selbst wenn sie mit grösster Sorgfalt erfolgt, nur geringen Werth zu beanspruchen. Ferner wird man von der Nachuntersuchung der etwa von den Seehäfen unmittelbar an die Konsumente vertriebenen amerikanischen Fleischwaaren, und zwar schon aus dem Grunde Abstand zu nehmen haben, weil hiermit eine zu grosse Belästigung des Publikums verknüpft sein würde. Endlich könnte man allenfalls auch auf die Nachuntersuchung des aus Amerika der Regel nach in Fässern eingehenden Schweine-

Circular to all royal district presidents and to the royal police president in Berlin, May 21, 1892, regarding the inspection for trichinæ of hams and sides of bacon imported from America.

By the imperial decree of September 3, 1891 (R.-G.-Bl., p. 385), the prohibition of the importation of swine, pork, and sausages of American origin is rescinded: For living swine, unconditionally; for pork and sausages, conditionally, in so far as these products are provided with official certificates, stating that they have been inspected in the land of origin according to the regulations existing there and have been found free from qualities which are injurious to health.

Shortly after the issuance of the decree doubts were raised from different sides whether there were not some uninspected pieces among the sendings of pork from America, although accompanied by proper certificates, and whether, further, the American certificates could lay claim to full trustworthiness. The reexaminations which were made upon this account in several places have proved these doubts to be well founded; in numerous instances American sides and hams have been found infested with trichinæ, which were to a great extent viable.

Under these conditions, in the interest of the sanitary police, we have instituted inquiry as to the possibility of carrying through a reinspection of imported American pork, etc., and have come to the following conclusion: Reinspection of American sausages is to be omitted. It is accompanied with certain difficulties, and has, further, even when conducted with the greatest care, a claim to very little value. Further, the reinspection of the American meat wares which are delivered to the consumers directly from the seaports is to be omitted, since otherwise too great an inconvenience to the public would result. Finally, the reinspection of pickled pork imported from America, usually in tierces, and of pickled pig tongues, could be omitted, as these wares are eaten only when cooked.

On the other hand, it appears generally feasible, and it is urgently recommended, to subject to reinspection before they are sold to consumers all American hams and

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pökelfleisches und der gepökelten Schweinezungen verzichten, da diese Waaren nur in abgekochtem Zustande verzehrt zu werden pflegen.

Dagegen erscheint es allgemein durchführbar und empfiehlt sich dringend, die in den einheimischen Gross- und Kleinhandel gelangenden amerikanischen Schinken und Speckseiten ohne Ausnahme der Nachuntersuchung zu unterwerfen, bevor sie an die Konsumenten verkauft werden. Zu diesem Zwecke werden dort, wo die Untersuchung des Schweinefleisches durch Polizeiverordnung geregelt ist, deren Bestimmungen auf die in Rede stehenden amerikanischen Erzeugnisse anzuwenden oder deswegen in geeigneter Weise zu ergänzen sein. In denjenigen Regierungsbezirken, wo es an solchen Polizeiverordnungen fehlt wird man zu erwägen haben, ob es für angezeigt zu erachten ist, sie demnachst, vielleicht in der Beschränkung auf amerikanische Schinken und Speckseiten, zu erlassen, oder ob die Nachuntersuchung dieser Gegenstände auf anderem Wege gesichert werden kann.

Ew. Hochwohlgeboren wollen das hiernach Erforderliche, wenn und soweit es noch nicht geschehen sein sollte, gefälligst veranlassen.

Berlin, den 21. Mai 1892.

Der Minister des Innern:

HERRFURTH.

Der Minister für Landwirthschaft, Domänen und Försten:

VON HEYDEN.

Der Minister der geistlichen, Unterrichts- und Medizinal-Angelegenheiten:
Im Auftrage:

BARTSCH.

[Copied from: Ministerial-Blatt für die gesammte innere Verwaltung in dem königlich preussischen Staate, No. 7, Aug. 15, 1892, pp. 227–228.]

sides, without exception, which come into the domestic wholesale and retail trade. For this purpose, where the inspection of pork is regulated by police ordinances, the rules are to be applied to the American products in question or are to be changed so as to apply to them. In those districts where such police regulations are lacking the question is to be considered whether it is deemed expedient to issue such regulations, perhaps confining them to American hams and sides, or whether the reinspection of these articles can be insured in another way.

You will please cause the necessary steps to be taken, when and in so far as this has not yet been done.

Berlin, May 21, 1892.

(Signed) The Minister of the Interior:
HERRFURTH.
The Minister of Agriculture, Domains, and Forestry:
VON HEYDEN.
The Minister of Religious, Educational, and Medical Affairs:
Per order of— BARTSCH.

This ministerial circular practically notified local Prussian authorities that they could promulgate such local restrictions against American meats as they saw fit, provided an alleged sanitary justification could be given, and it is not unreasonable to consider it the origin of the numerous local regulations which followed.

In 1893 the Department of Agriculture changed the color and form of the stamps intended to accompany microscopically inspected meats, adopting a violet color; in 1896 a violet certificate of special form and wording was adopted.

Since the Prussian circular of May 21, 1892, numerous local authorities, not only in Prussia but in other parts of Germany, have insisted upon reinspecting American meats imported under the American certificate, and these inspections and reinspections have given rise to frequent protests on the part of exporters, importers, and dealers, as well as to extensive diplomatic discussions between Germany and America. Summed up in a few words, the positions of the two Governments have been as follows: The American Government has maintained that these numerous local regulations were a serious restriction upon trade, a restriction which was not justified by sanitary arguments nor by Germany's sanitary experience with American meats. Germany's (imperial) position has been that the restrictions complained of were local, not imperial, regulations; that according to German law trichinous meat could not be sold; that trichinæ are frequently found in American meats which are imported under American certificates.

In 1897 the writer of the present report was detailed to visit Germany in order to investigate the alleged presence of trichinæ in inspected American meats. He remained for nearly two years, studying the subject in Germany and surrounding countries. During this time the questions at issue were discussed in all their bearings with various German authorities, and finally having convinced himself that further scientific discussion on his part would not change the diplomatic situation he reported this fact to his Government, and in the summer of 1899 he was instructed to bring his work to an end and to return to America toward the close of the calendar year.

Having now returned, he is still of the opinion that the further scientific discussion of the American pork question with Germany will not alter the situation. This is no longer a scientific question, but purely a political and an economic one. The imperial authorities have proposed an imperial meat-inspection law, in which the sanitary arguments advanced by the United States Government are fully recognized. The Reichstag has attacked the draft of this bill as not being sufficient to meet the problems involved. Thus we have this position: *The Bundesrath has sanctioned the sanitary measures admitted by the active and the advisory sanitarians of the German Government, while the Reichstag attacks these sanitary measures as insufficient;* while, in reply, a representative of the Imperial Government has intimated, in language[1] which can not be misconstrued, that the position taken by certain members of the Reichstag appears to be actuated by motives which are not purely hygienic.

The writer desires to express his conviction that the Imperial authorities have endeavored to act with perfect fairness in connection with this new law and with a due consideration of the hygienic necessities in Germany. Newspaper attacks, to the contrary, are, in his judgment, prompted by other than purely sanitary motives. The draft of the bill, as adopted by the Bundesrath and presented to the Reichstag, is one of the ablest and most thorough sanitary documents ever presented to a legislative body. If it were to become a law, and that law supported by equally fair regulations, administered in an unbiased manner, the present numerous complaints regarding the restrictions upon trade would become matters of past history. While it is not the intention of the writer to discuss the bill in detail at this time, still, from the standpoint of a sanitarian interested in *international* hygienic matters, he can only express his regret that the draft in question does not contain a provision that *all imported meats must be accompanied by a certificate issued by the central Government of the land in which said meats are slaughtered and dressed, and stating that officials of said exporting land had inspected the same both before and after slaughter, and had not found them infected with any disease which would render them dangerous as food.*

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[1] "Now I must state—and I do this with regret--reasons were in some instances brought forward which created the impression as though we were not speaking on a law for the protection of the German people, but on a part of the new duty tariff—the duty to be paid on meat and meat products. ['Very true.'] It has been especially stated by one of the speakers that we can ourselves supply the meat demand in Germany and must try to rid ourselves of the inferior foreign meat. This law, it is true, is not the *sedes materiæ* for this. Differences in the cost of production of various countries can only be equalized by passing customs laws. If we were to place ourselves on the standpoint of trying to prohibit the introduction of goods which we manufacture in sufficient quality and quantity, this would certainly invite similar measures on the part of other countries. In this manner we could totally exclude an exchange of goods with other people ['Very true,' on the left], and I believe that we should not then have to worry in regard to the future formation of our commercial relations, as we are now doing. [Hearty applause on the left.] Gentlemen, I believe that if prohibitions are placed on goods imported from other States, it is necessary, in the first place, that we do not at such a time need those foreign goods, and it must furthermore plausibly be proven that these goods are dangerous to health."—Count Posadowsky-Wehner, Imperial Minister of the Interior.

Such a provision would greatly strengthen the bill, and would do away with many swindles which to-day tend to support a dishonest traffic. As justification for expressing this opinion, the writer advances the statements (1) that he is reporting to his own Government, not to Germany; (2) that he is reporting upon a subject which lies within his province; (3) that from the standpoint of the sanitarian it is an error to claim that the bill in question is *strictly* an internal German affair; it is, on the contrary, an important international hygienic matter, in regard to which every sanitarian may take a legitmate interest and express an opinion.

Two further official acts deserve a moment's notice. In the summer of 1898, the United States Department of Agriculture prevented the further exportation of fresh pork from this country to Germany. The sanitary reason for this action is apparent to anyone who has followed closely the history of trichinosis.

Shortly before the return of the writer from the German capital to Washington an incident occurred which stands out in bold relief when compared with the straightforward action of the Imperial German authorities. Reference is made to the following order which accidentally became known beyond the circles for which it was intended. It appeared in substance in one of the American newspapers, but at that time attracted little attention; later it was read in the Reichstag by one of its members, and was afterwards printed in full in one of the German newspapers, and commented upon widely in the press of both countries:[1]

[The district president. C. B. 2323.]

DÜSSELDORF, *July 24, 1899.*

According to a circular of June 11, 1894 (Ministerial Journal for Internal Administrations, 102), inquiries and requests which are directed to German administrative authorities by consuls of foreign States, stationed in Germany and provided with exequatur, so far as lies within their (the consuls') official duties and within their official district, may be answered by these (German officials) directly, in so far as the

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[1] [Der Regierungspraesident. C. B. 2323.]

DÜSSELDORF, *d. 24. Juli 1899.*

Nach einem Circulare vom 11. Juni 1894 (Ministerialblatt fuer innere Verwaltungen, 102) koennen Anfragen und Ersuchen, welche seitens der in Deutschland bestellten und mit dem Exequatur versehenen Konsuln auswaertiger Staaten innerhalb der Grenzen ihrer amtlichen Aufgaben und ihrer Amtsbezirke an die diesseitigen Verwaltungs-behoerden gerichtet werden, von diesen unmittelbar beantwortet

questions are not matters of general policy (importance). Toward the American consuls, for whom the foregoing principles are also valid, all communications are, however, to be avoided which are likely to work against German interests, immaterially whether their desire for information bears upon questions of general policy (importance) or not. In cases of doubt an answer is at first not to be given, and report to be made to me. As information which under no circumstances is to be given to American consuls, I designate, for instance, statistical data regarding violations of the Imperial food law (Nahrungsmittelgesetz) and its supplementary laws, especially regarding the manufacture of and trade in foods and edibles which are injurious to health, including toys, regarding adulteration (falsification) of and trade in such wares, and the trade with such adulterated (falsified) wares, regarding (the finding of) trichinæ and cysticerci in native meat, and regarding the status of diseases in man and animals. Whenever the questions for information touch the last-named points, there is, however, no objection (hesitation) for German officials to refer to the regular statistical reports in the "Veroeffentlichungen des Kaiserlichen Gesundheitsamtes." No further material is, however, to be furnished.

I request you to treat this matter as *strictly confidential* and to provide the officials under your charge with appropriate instructions, laying particular stress on the strictly confidential treatment.

A communication of this order to the mayors through simple repetition of this in copy is not to take place. You are rather to act by giving special orders.

(Signed) FREIHERR VON RHEINBABEN.

To the LAND COUNCILORS AND HEAD MAYORS.

Favors to American consuls are to be avoided, and in all cases not free from doubt report is to be made to the district president. A. G. I.

DISTRICT PRESIDENT.

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werden, sofern es sich nicht um Fragen von allgemeiner Bedeutung handelt. Gegenueber den amerikanischen Konsuln, fuer welche die vorangesetzten Grundsaetze gleichfalls Geltung haben, ist indessen von allen zur Beeintraechtigung diesseitiger Interessen geeigneten Mitteilungen abzusehen, gleichgueltig ob deren auskunftbegehren Fragen von allgemeiner Bedeutung treffen oder nicht. In Zweifelfaellen ist von einer Antwort zunaechst abzusehen und er an mich zu berichten. Als Mitteilungen, die unter keinen Umstaenden den amerikanischen Konsuln zu machen sind, bezeichne ich beispielsweise statistische Angaben ueber Zuwiderhandlung gegen das Nahrungsmittelgesetz und seiner Nebengesetze, insbesondere ueber die Herstellung und den Vertrieb gesundheitsschaedlicher Nahrungs- und Genussmittel und Verfaelschung und den Vertrieb derartiger Waaren und den Vertrieb derartiger verfaelschter Waaren, ueber Trichinen und Finnenfunde, in einheimischem Fleisch und ueber den Stand von Menschen- und Tierkrankheiten. Es besteht jedoch kein Bedenken, wenn die Anfragen ueber die letztbezeichneten Punkte die um Auskunft ersuchten diesseitigen Behoerden auf die regelmaessigen statistischen Mitteilungen in den "Veroeffentlichungen des Kaiserlichen Gesundheitsamtes," verweisen; eine Beschaffung weiteren Materials hat indessen zu unterbleiben.

Ich ersuche diese Angelegenheit als *streng vertraulich* zu behandeln und die nachgeordneten Behoerden mit entsprechenden Weisungen unter ausdruecklicher Betonung der streng vertraulichen Behandlung zu versehen.

Eine Mitteilung dieser Verfuegung an den Buergermeister durch einfache Kenntnissgabe derselben in Abschrift hat zu unterbleiben; es ist vielmehr im Wege besonderer dortseitiger Verfuegung su verfahren.

(Gez.) FRHR. V. RHEINBABEN.

AN DIE LANDRAETE UND OBERBUERGERMEISTER.

Entgegenkommen gegen amerikanische Konsuln zu vermeiden und in allen nicht zweifelfreien Faellen an Regierungspraesident zu berichten. A. G. I.

REG. PRAES.

It is not the intention of the writer to discuss this order from a diplomatic standpoint, but it has been his unpleasant duty to call the attention of the Department of Agriculture to the following points in connection with it:

(1) The discussion of any hygienic problem connected with Prussia is, in view of the existence of this document, attended with serious restrictions and difficulties.

(2) Should an outbreak of trichinosis or other disease occur in Prussia and be attributed to American products, it would be impossible for American consuls to make an objective investigation of the subject.

(3) Only such sanitary information in Prussia is now accessible to us as has percolated through the Prussian officials, and we are therefore reduced to accept (or reject) whatever statements they choose to make.

(4) This document amounts to a Prussian governmental support, countenance, or protection of the manufacture of articles of food or of use which may be dangerous to health, provided those articles are intended for export to the United States.

(5) It is practically impossible, with this order in existence, to carry out the conditions imposed in connection with the importation of animals from Germany to the United States.

(6) The document in question prevents American officials, no matter how friendly their feelings toward Germany may be, from admitting that action in Prussia toward American meats is governed by a purely objective consideration of sanitary data.

(7) The reference to the "Veröffentlichung" of the Imperial health office can not be accepted as lessening the objectionable features of this order, since that publication contains statistics which are usually too brief and incomplete to supply the information we desire, and since these statistics appear from a week to several years after the cases of disease occur.

Local regulations.—No one can attack the principle that governmental authorities not only have a right but a duty to take such steps as are necessary to prevent the spread of disease. Whether any given steps taken are "necessary" or justifiable from a purely theoretical or a practical hygienic standpoint, is a question which one can always legitimately discuss, and such discussion must be based both upon general principles and upon the special conditions existing in the districts to which the regulations apply.

From a practical standpoint, we should start out with the view that any sanitary regulation which unnecessarily restricts trade is unjustifiable; not only is it calculated to work undeserved hardships to the parties concerned, but it has a decided tendency to bring public sanitary regulations into contempt; it makes enemies of the very men whose cooperation and friendly feeling should be secured, and it has a decided tendency to force the trade out of the hands of honest merchants into the hands of men with a less regard for straightforward dealings; it furthermore sets a premium upon dishonest trade.

As a special condition which should be borne in mind in connection with the meat question in Germany, we must not lose sight of the fact that there exists in certain parts of that Empire the exceedingly dangerous custom of eating pork raw. Now, if it is impossible to change this custom, or if there is no disposition to do so, it can not be considered surprising that the authorities in the districts in question should feel themselves called upon to lessen the dangers involved by appropriate precautionary measures.

Germany's right to compel a microscopic inspection of pork to be consumed by the people of a given district in order to prevent trichinosis is, in the abstract, a matter which concerns Germany alone. When, however, the hygienic restrictions imposed appear unnecessarily severe, when they lead to continued protests from honest dealers, when they further appear to be unsupported by any practical experience, it can hardly be expected that interested parties will look upon them as resting upon purely sanitary motives.

The local regulations in Germany would fill several good-sized books. They may all be summed up by describing them as consisting of every degree between such regulations as command the respect not only of sanitarians, but also of honest dealers, and regulations which are exasperating to the dealer and incomprehensible to the sanitarian.

Since these regulations vary according to locality, and since the different localities frequently amend them, the wholesale dealer finds that not an inconsiderable portion of his time is occupied in trying to keep himself informed regarding the police requirements of various towns.

One of the most interesting points in connection with this subject is the question of the frequent reinspections in Germany. If, for instance, a sending of meat has once been inspected in Germany, in addition to the inspection it has received in America, and if it then be shipped to another town, should it again be reinspected there? Take the following case, which came under my observation: A wholesale dealer (A) in Halle a. S. imported a sending of American pork and placed it in his warehouse; he later sold the goods to a smoker (B) in Gera-Reuss; B wished to smoke the meat and sell it to a retail dealer (C) in Dresden. Although these goods were *only in storage* in Halle, the police compelled their microscopic reinspection by a duly authorized inspector before A was permitted to ship them to B. The police in Gera would not recognize the Halle inspection as valid because it was not performed in a slaughterhouse, although it was demanded and recognized by the police in Halle. Gera regulations insisted that this meat should be taken to the Gera slaughterhouse and there reinspected (*at twice the fee charged for the inspection of German meats*). Now, it is not unreasonable to maintain that this meat, after thus being microscopically inspected *three* times, should at least stand on the same footing in Gera enjoyed by German meats which had been inspected but once. Such, however, is not the case. If the dealer wished to sell these goods in Gera he would be obliged to display a sign in his store stating that he was selling imported American meats, and this in the face of a *warning issued by the city council* (stadtrath) *against eating imported* (i. e., anything but German) *pork unless it was thoroughly cooked.* Whether it is this official warning or the Gera inspection (at double price) which is superfluous the writer will not attempt to argue. But to follow the case: The smoker B had no intention of selling the goods in Gera, but wished to ship them to C in Dresden. The Dresden authorities, however, could not, according to their regulations, recognize either the American, the Halle, or the Gera official inspections, so C could not sell his goods unless they were inspected in Dresden *for a fourth time.*

Upon more than one occasion the question of these repeated reinspections has come before the courts. Two cases, passed upon by the same five judges in Berlin, have recently been brought to my attention and will interest the reader. By reading the two regulations quoted in the footnotes, it will be seen that they are not identical in wording, although both are intended as hygienic measures to cover identically the same conditions. A comparison of the portions which are here italicized is instructive, and a comparison of these two cases with the case given above (Halle; Gera; Dresden), pages 24, 25, will give the reader a fair idea of the trade restrictions which have given rise to so many complaints.

Case I.[1]—The defendant, a merchant, had sold on November 26, 1898, in Stettin, pickled pork of American origin, which had been officially reinspected in Altona,

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[1] Kammergerichtsurteil vom 3. Juli 1899. Im Namen des Königs! In der Strafsache wider den Kaufmann J——— K——— zu Stettin wegen Uebertretung der Polizeiverordnung des Regierungspräsidenten zu Stettin vom 10. Februar 1894 hat auf Berufung der königlichen Staatsanwaltschaft gegen das Urteil der Strafkammer V. des königlichen Landgerichts zu Stettin vom 15. April 1899 eingelegte Revision des Strafsenat des königlichen Kammergerichts in Berlin, Lindenstr. 14 in der Sitzung vom 3. Juli 1899 an welcher Teil genommen haben:

1. Groschuff, geheimer Oberjustizrat, Senatspräsident als Vorsitzender.
2. Ziegler, geheimer Justiz- und Kammergerichtsrat.
3. von Uechtritz, Justiz und Kammergerichtsrat.
4. Thielmann, Kammergerichtsrat.
5. Dr. Kronecker, Kammergerichtsrat als beisitzende Richter.

Wörmann, Staatsanwaltschaftsrat als Beamter der Staatsanwaltschaft.
Kron, Referendar als Gerichtsschreiber.

Für Recht erkannt:

Auf die Revision der königlichen Staatsanwaltschaft wird das Urteill der V. Strafkammer des königlichen Landgerichts zu Stettin vom 15. April 1899 aufgehoben but not in Stettin. Thereby he had disregarded paragraphs 3 and 4 of the police regulations, for the latter provided that he could not, as merchant, sell this meat unless provided with an attest or stamp of a meat inspector who was authorized for the *place of sale* ("Verkaufsort"). The place of sale in sense of paragraph 4 is that place (Stettin) where the defendant as merchant sold the meat; the regulations govern the slaughtering, offering for sale, and selling in the Stettin district. The opposite view, held by the judge of the lower court, is contrary to the clear wording and sense of the regulations, which do not provide for an inspection in Germany, as the

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und die Sache zur anderweiten Verhandlung und Entscheidung auch über die Kosten der Revisionsinstanz, an das Berufungsgericht zurüruckgewiesen.

VON RECHT WEGEN GRÜNDE.

Die Revision der königlichen Staatsanwaltschaft, welche Verletzung der §§ 3, 4, 14 der Polizeiverordnung des Regierungspräsidenten zu Stettin vom 10. Februar 1894 rügt, ist begrundet. Der Angeklagte, welcher Kaufmann ist, hat am 26. November 1898 gepökeltes aus Amerika stammendes Schweinefleisch in Stettin verkauft, welches zwar in Altona aber nicht in Stettin amtlich untersucht und dessen Freiheit von Trichinen und Finnen daher auch nur durch ein Attest des Altonaer, nicht durch ein solches des Stettiner Trichinenbeschauers nachgewiesen war. Damit hat er gegen die §§ 3, 4, der erwähnten Verordnung verstossen, denn der amtliche Nachweis, ohne den der Angeklagte als Kaufmann das Fleisch § 3 nicht verkaufen durfte, konnte nach § 4 nur durch ein amtliches Attest oder durch einen Stempel eines für den *Verkaufsort* concessionirten Trichinenbeschauers geführt werden.

Verkaufsort im Sinne des § 4 ist derjenige Ort, an welchem der Angeklagte als Kaufmann das Fleisch verkauft (§ 3, Abs. 1), also Stettin, die ganze Verordnung regelt auch lediglich des Schlachten, Feilhalten und den Verkauf innerhalb des Stettiner Bezirks; die entgegengesetzte Auffassung des Vorderrichters widerspricht dem klaren Wortlaut und Sinn der Verordnung, diese beabsichtigt nicht, wie das Berufungsurteil irrtümlich annimt lediglich eine Untersuchung des Fleisches in Deutschland vorzuschreiben, sondern sie wollte anordnen, dass diese Untersuchung gerade an demjenigen Orte des Regierungsbezirks Stettin stattfinde, wo das Fleisch zum Verkauf gelangt, dass sich aus dieser Auslegung, wie das Schöffengericht unter Billigung der Strafkammer ausführt, bedenkliche Folgen ergeben, kann nicht zugestanden werden. Eine Mehrheit von Untersuchungen ist, wie die Revision zutreffend ausführt dadurch zu vermeiden, dass das Fleisch von der Einfuhrstation, ohne dort untersucht zu werden, unter amtliches Verschluss an den im Regierungsbezirk Stettin belegenen Verkaufsort gesandt wird. Die Sache war daher unter Aufhebung des angefochtenen Urteils zur anderweiten Verhandlung und Entscheidung an das Berufungsgericht zurück zuverweisen, welches auch über die Kosten der Revision instanz zu befinden haben wird.

(Gez:)

GROSCHOFF,
ZIEGLER,
VON UECHTRITZ,
THIELMANN,
DR. KRONECKER.

An Herrn Rechtsanwalt L., *zu Grabow.*

Paragraph 3.

Kaufleute und Händler, sowohl in den Städten, als auf dem platten Lande, welche Schweinefleisch oder daraus bereitete Fleischwaaren feilhalten, dürfen diese Gegenstände erst dann zum Verkaufe auslegen, feilhalten oder verkaufen, wenn sie der Ortspolizeibehörde einen amtlichen Nachweis darüber geführt haben, dass die Gegen-

first decision erroneously assumes, but they are intended to provide that this inspection shall be made in that part of the Stettin district where the meat is sold; *that this interpretation would result in serious consequences, as assumed by the lower court, can not be admitted. Repeated inspections*[1] *may be avoided by sending the meat, uninspected, directly to the place of sale.*

Case II.[2]—The appeal (of another case) is rejected. The lower court has correctly assumed that section 2, article 2, of the regulations (of Bromberg) provide only for a single inspection in the German Empire of meat imported from foreign countries;

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stände auf Trichinen und Finnen vorschriftsmässig untersucht und frei von Trichinen und Finnen befunden worden sind.

Ausgenommen von dieser Verpflichtung sind nur die Grosshändler (das sind diejenigen, welche derartige Waaren nicht unter einer vollen Kiste verkaufen), soweit es sich lediglich um die unter Steuerverschluss resp. im Transitverkehr durchgehenden amerikanischen Schweinefleischwaaren handelt.

Paragraph 4.

Der im § 3 erforderte Nachweis wird geführt, entweder:

(*a*) Durch ein Attest der Polizeibehörde des URSPRUNGSortes der fraglichen Waaren DES Inhalts: dass dort die Untersuchung der geschlachteten Schweine auf Trichinen und Finnen obligatorisch ist, oder dass die Schweine, von denen die Waaren herhühren, auf Trichinen und Finnen vorschriftsmässig untersucht und frei davon befunden worden sind, oder

(*b*) Durch ein Attest der Polizeibehörde des ABSENDUNGSortes beziehungsweise eines dortigen amtlichen Trichinenschauers darüber dass die Fleischwaaren dort vorschriftsmässig untersucht und frei von Trichinen und Finnen befunden worden sind, oder

(*c*) Durch ein amtliches Attest oder
(*d*) Durch die deutliche Bezeichnung mit dem Farben-, Stich- oder Brennstempel.
} Eines für den VERKAUFSort konzessionirten Trichinschauers.

Schweinefleischwaaren, *deren Ursprungsort ausserhalb des Deutschen Reichs liegt, bedürfen stets* entweder des sub *c* oder des sub *d* angeführten Nachweises.

[1] Compare above, p. 24. Halle.

[2] In Namen des Königs. In der Strafsache gegen den Kaufmann W——— K——— zu Gnesen, wegen Uebertretung der Bromberger Regierungsverordung vom 1. November 1897 hat auf die von der königlichen Staatsanwaltschaft gegen das Urteil der Strafkammer 3 des königlichen Landgerichts zu Gnesen vom 10. Dezember 1898 eingelegte Revision der Strafsenat des königlichen Kammergerichts zu Berlin in der Sitzung vom 23. März 1899, an welcher Teil genommen haben:

1. Groschoff, geheimer Justiz u. Kammergerichtsrat.
2. Ziegler, geheimer Justiz u. Kammergerichtsrat.
3. von Uechtritz.
4. Thielmann, Kammergerichtsrat.
5. Dr. Kronecker, Kammergerichtsrat als Richter.

Richter, Staatsanwalt als Beamter der Staatsanwaltschaft.

Dr. Werner, Referendar, als Gerichtsschreiber.

Für Recht erkannt:

Die Revision der königlichen Staatsanwaltschaft gegen das Urteil der 3. Strafkammer des königlichen Landgerichts zu Gnesen vom 10. Dezember 1898 wird zurückgewiesen, die Kosten des Rechtsmittels werden der Staatskasse zur Last gelegt.

VON RECHTS WEGEN: GRÜNDE.

Die Revision der königlichen Staatsanwaltschaft, welche Verletzung der §§ 2 und 3 der Bromberger Regierungspolizeiverordnung vom 1. November 1897, rügt, konnte this inspection is to take place at the place in which the meat enters the Empire. This interpretation corresponds to section 3, as well as to the purpose of the regulations. *The opinion of the appellant would, as is rightly contended in the judgment, lead to unjust (sachwiedrigen) and clearly unintended results, that meat imported from foreign countries should be subjected to a reinspection every time it is shipped from one place to another in the Bromberg district.*

Number of trichina inspectors in Germany.—The number of trichina inspectors in Germany is variously estimated at from 25,000 to 100,000. In connection with the estimates, and also in connection with the outbreaks, it is necessary first to understand that a sharp line should be drawn between two different classes of these workers. This point, which not a few persons have overlooked, is of considerable importance.

First. We must distinguish those inspectors who are stationed at regular official inspection offices, such as in slaughterhouses, and who are under the constant supervision of a higher inspector. These persons give up practically their entire working time to this duty, and they work in the cities and larger towns.

Second. We must distinguish those inspectors who follow some other line of work as a vocation (physicians, druggists, teachers, butchers, blacksmiths, etc.) and who take up the trichina inspection simply as an incidental source of income. For the most part, these men and women are scattered over the country and country towns, but are not so numerous in cities. They work independently and are not subject to the daily control undergone by the first class. They are officially licensed (after an examination) to do the work, and, like all

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keinen Erfolg haben. Zutreffend hat der Vorderrichter angenommen, dass der § 2 Absatz 2 der Verordnung für das aus dem Auslande stammende Schweinefleisch nur eine einmalige Untersuchung vorschreibt, welche an demjenigen Orte vorzunehmen ist, an welchem das Fleisch vom Auslande in das Deutsche Reich eingeführt wird. Diese Auslegung entspricht sowohl dem § 3, nach welchem das Fleisch nach erfolgter Untersuchung verwendet und verkauft werden darf, als auch dem Zweck der Verordnung, welcher durch eine einmalige innerhalb des Deutschen Reiches zu bewirkenden Untersuchung erreicht wird. *Die Auffassung der Revision würde, wie das Berufungsurteil mit Recht ausführt, zu dem sachwidrigen und offenbar nicht gewollten Ergebnis führen, dass das aus dem Auslande stammende Fleisch bei jeder Ortsveränderung innerhalb des Regierungsbezirks Bromberg einer neuen Untersuchung unterworfen werden müsste.* Die Revision war daher zurückzuweisen. Die Kosten des Rechtsmittels fallen nach § 505 Str. P. O. der Staatskasse zu Last.

(Gez:)

GROSCHOFF,
ZIEGLER,
V. UECHTRITZ,
THIELMANN,
DR. KRONECKER.

Wer Schweinefleisch oder Schweinefleischwaren einführt, deren Ursprung ausserhalb des Deutschen Reiches gelegen ist, ist verpflichtet die Waren durch den von der Ortspolizeibehorde für den betreffenden Bezirk bestellten Trichinenschauer auf Trichinen und Finnen untersuchen zu lassen.

other trichina inspectors, are subject to a triennial reexamination in the theory and practice of their duties. While many of these persons are undoubtedly conscientious in their work and fully able to carry it on, it is but natural that many of them should be less expert and in some instances intellectually inferior to the trichina inspectors employed in regular inspection offices. It may be expected, therefore, that more errors will occur in the inspection as conducted by this second class of workers than by the first, for sometimes days or weeks, perhaps months, pass between their inspections. From the published statistics it can not be determined how many inspectors in Germany belong to the first and how many to the second class.

According to the statistics the number of inspectors employed, the number of hogs examined, and the number of trichinous hogs found, for the years 1886–1896, are for Prussia alone as follows:

Number of inspectors, number of hogs inspected, and number of hogs found trichinous 1886–1896.

Year.	Number of inspectors.	Number of hogs inspected.	Number of hogs found trichinous.	Authority.
1886	22,939	4,834,898.5	2,114	Ostertag, 1899, p. 504.
1887	23,297	5,486,416.5	2,776	
1888	23,836	6,051,249.5	3,111	
1889	24,030	5,500,678.5	3,026	
1890	24,454	5,590,510	1,756	Veröff. kais. Gesundheitsamtes, 1894, No. 18, p. 208.
1891	24,586	6,550,182	2,187	
1892	25,816	6,234,559	2,085	
1893	26,855	6,251,766	1,422	Veröff. kais. Gesundheitsamtes, 1895, No. 20, p. 347.
1894	26,881	6,895,222	1,393	Veröff. kais. Gesundheitsamtes, 1896, No. 41, p. 790.
1895	27,089	7,752,171	1,531	
1896	27,602	8,759,496	1,877	Veröff. kais. Gesundheitsamtes, 1898, XXII, (5), p. 95.

It is interesting to compare these Prussian statistics of the number of trichina inspectors with the statistics of the Regular Army of the United States. According to the Official Army Register for 1897 the total number of officers and enlisted men (exclusive of the retired list) of the United States Army was 28,238. The number of enlisted men provided for by law was 25,000. Thus for Prussia alone the trichina inspection force in 1895 was almost as large (27,089) as the entire Regular Army of the United States, and during the years 1892–1895 the number of Prussian trichina inspectors was greater than the number of enlisted men then authorized by law for the United States Army.

Comparing the total population of Prussia (December 2, 1895), given at 31,855,123, with the number of inspected hogs and the number of trichina inspectors employed, we find an average per capita of nearly one-fourth of an inspected hog (0.2433); we also find that Prussia employed (1895) one trichina inspector for approximately every 1,176 inhabitants. Comparing the number of inspectors, the number of hogs inspected, and the number of trichinous hogs found, we note that each inspector examined on an average 286 hogs, and that it took on an average about 17.69 inspectors to find each trichinous hog. In this computation the best available (official) Prussian statistics have been taken as basis. The American pork is evidently not included in the above statistics of hogs. If we extend these statistics to the total number of inhabitants in the German Empire, given December 2, 1895, at 52,279,701, we find that on a basis of the Prussian inspection (1 inspector to 1,176 inhabitants), assuming the same conditions (which, by the way, do not actually exist), there would be about 44,455 trichina inspectors.

As a matter of fact, the above computation does not prove that 44,455 would be the number of inspectors necessary to have examined the pork consumed in Germany in 1895, since it leaves out of consideration a number of important factors, viz: The number of hogs one inspector can examine in a year, hence the number of inspectors which would have been actually necessary for the inspection of the number of hogs given; the number of hogs slaughtered but not inspected; the amount of imported meat, etc. The above estimate would make the total number of hogs about 12,700,000. The Imperial health office in 1898 estimated the annual killing at 14,000,000 hogs. Accepting this latter estimate, and comparing the average number (286) of hogs examined in Prussia by each inspector, we obtain an estimate of 48,951 trichina inspectors for the Empire, calculating upon the Prussian basis. Still, this can not be looked upon as exact. If the work were centralized, so that it could be systematized, 3,000 microscopists of class No. 1 (see p. 28) could easily examine all the hogs slaughtered in Germany, even upon the basis of a low number of examinations daily. Scattering the slaughtering over such a large area necessarily results in the licensing of a greater number of inspectors.

Accordingly, respecting the number of microscopists required, the general principle may be laid down that this is more dependent upon the number of places at which slaughtering occurs than it is upon the number of hogs slaughtered, and that the fewer the places of slaughtering, the fewer inspectors will be required even by an increase in the number of animals slaughtered.

This general principle is exceedingly important in considering the proposition that the United States Department of Agriculture should introduce an obligatory trichina inspection of all hogs slaughtered in America. For it is immediately evident that if all of the hog killing for the entire country could be concentrated at the registered abattoirs, we should have to deal only with inspectors of class No. 1 (see

p. 28). The organization would therefore be comparatively easy, for a few thousand inspectors constantly employed could accomplish the work. This concentration, however, would be impossible. Hogs will continue to be killed on farms and in country towns; hence, when anyone proposes that the Department of Agriculture should introduce a universal inspection, he practically demands that a large army of trichina inspectors of class No. 2 should be appointed and distributed over the immense area of the United States. Quite aside from the legal complications, it should first be inquired whether such a plan is practicable from a purely hygienic standpoint, and for this inquiry we must turn first of all to the German statistics.

Expense of the trichina inspection in Germany.—It is impossible to present any official statistics of the expense of this system for the entire German Empire, although several comparative estimates may be cited. Wasserfuhr (1892) gives an interesting account of the expenses for Berlin, Prussia. Taking these estimates as basis, we may compute what the approximate expense of the system for the entire German Empire would be, assuming that the Berlin conditions applied to all places.

The number of swine slaughtered and examined at the Central Slaughterhouse at Berlin during the year was estimated at 459,000. The microscopists received 55 pfennigs for the examination of each hog, making a total of 252,450 marks (Wasserfuhr gives it as 247,500 marks). The total amount of salaries paid to 6 chiefs, 12 deputy chiefs, and 50 sample takers is given at 95,850 marks. Upon this basis the salaries alone for inspecting 459,000 hogs amounted to 348,300 marks ($82,895.40), or 0.7588 mark ($0.18) per hog. Extending this estimate to the 14,000,000 annual kill for Germany, we find that the 55 pfennigs per head due the microscopists amounts to 7,700,000 marks ($1,832,600), while the 0.2088 mark per head due to the other employees mentioned amounts to 2,923,200 marks ($695,721.60); total, 10,623,200 marks ($2,528,321.60). In this estimate no allowance is made for rent, heat, light, water tax, office expense, purchase and repair of instruments, stationery, etc., or the loss of condemned meats.

For comparison with these figures we may notice an estimate made on the expenses in Regierungs-Bezirk Posen. Géronne (1894, p. 123) states that this bezirk expends "more than" 150,000 marks ($35,700) annually upon the trichina inspection (1889–1891). Accepting 150,000 marks as approximate, Posen slaughtered during 1889–1891 an average of 152,478 hogs annually, making the cost of the trichina inspection 0.983 mark ($0.234) per head. Extending this estimate to the 14,000,000 annual kill for the Empire, we obtain a cost of 13,762,000 marks ($3,275,356).

Still a third computation may be made upon basis of weight. According to the Government's argument in support of the meat-inspection bill, the Saxon estimates are 0.64 pfennig per kilogram for inspecting pork, and 0.42 pfennig per kilogram for inspecting beef. We shall not be very far out of the way if we attribute the difference of 0.22 pfennig (0.05236 cent) in great part to the trichina inspection.

It is estimated that the annual consumption of meat in Germany is 45 kilograms per capita, but no estimate is accessible to me as to the consumption of pork. An estimate may, however, be made as follows: Saxony used, in 1897, 15.3 kilograms beef and 25.9 kilograms pork per capita. If the Saxon average were the average for Germany, the inspection for the entire Empire upon this basis would cost 0.0022 pfennig × 25.9 = 0.5698 mark (× 0.238 = $0.1356124) per capita × 52,279,701 inhabitants (1895) = 29,788,953 marks (× 0.238 = $7,089,772)—a very high estimate. Again, according to the Deutsche Fleischer Zeitung, August 30, 1899, it cost the city of Leipzig, Saxony, in 1898, 90,000 marks ($21,420) to inspect 131,708 animals for trichinæ, giving a rate of 0.68332 mark (about 16¼ cents) per animal. Extending the computation to the 14,000,000 annual kill (hogs), the microscopic inspection, based upon the Leipzig figures, would cost the Empire 9,566,648 marks ($2,276,862).

To summarize: Upon the basis of the figures given, the microscopic inspection would cost Germany—

	Marks.		Dollars.
Taking the Saxon per kilogram figures	29,788,953	=	7,089,772
Taking the Posen per hog figures	13,762,000	=	3,275,356
Taking the Berlin per hog figures	10,623,200	=	2,528,321
Taking the Leipzig per hog figures	9,566,648	=	2,276,862
Average	15,935,201	=	3,792,577

It will be noticed that the highest estimate is based upon the food consumption, hence includes imported as well as German meat, while the other estimates include only the meat slaughtered in Germany. Further, it is doubtful whether the per capita pork consumption in Germany, including the vast agricultural areas, is as great as that of Saxony with all its factories. Accordingly, the highest estimate is undoubtedly too high, while the others are too low.

While these figures therefore can not be looked upon as exact, they may be construed as meaning that the trichina inspection, if extended to entire Germany, would cost somewhere near 13,000,000 to 15,000,000 marks, or about $3,000,000 to $3,500,000, annually.

The person who wishes the obligatory trichina inspection introduced into the United States may take these figures as a working basis, compare them with salaries paid in America, consider the few cases of trichinosis we have, examine the German statistics, and then ask himself the question whether the Department of Agriculture would be justified in expending this sum of money for the purpose indicated, or whether it could accomplish more good with the same sum expended in other ways.

It is interesting in this connection to notice that the appropriation for the United States Department of Agriculture for the past three years has been: 1897, $2,448,532; 1898, $2,467,902; 1899, $2,829,702; average, $2,582,045.33.

Thus it will be seen by comparison with the figures above, the trichina inspection would cost Germany about $500,000 to $1,000,000 more than the entire annual appropriation for the United States Department of Agriculture.

Amount of American pork imported into Germany, 1892–1898.—The author is indebted to Mr. Frank H. Hitchcock, Chief of the Section of Foreign Markets of this Department, for the following table, giving the total amount of American pork exported to Germany for the fiscal years 1892 to 1898, inclusive, compiled from the American export statistics. The table of statistics of pork imported into Germany during the calendar years 1897 and 1898 is taken from official German statistics:

Quantity of bacon, hams, and pork exported from the United States to Germany during the fiscal years ended June 30, 1892 to 1898, inclusive.

Fiscal year—	Bacon.	Hams.	Pork, fresh.	Pork, salted or pickled.	Total.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1892	15,717,046	955,893	....	5,077,360	21,749,799
1893	8,106,499	898,804	....	709,900	9,715,208
1894	12,537,849	1,293,735	....	2,431,325	16,262,909
1895	13,160,325	1,977,568	....	2,149,850	17,287,743
1896	9,086,825	1,855,798	....	1,261,000	12,203,628
1897	26,878,289	2,943,983	....	1,902,637	81,724,909
1898	51,524,565	11,963,631	621,917	8,995,122	73,105,235
Total	137,011,398	21,888,912	621,917	22,527,194	182,049,421
Total tons[1]	61,166	9,772	277	10,057	81,272

[1] Tons of 2,240 pounds.

Quantity of bacon, hams, pork, and sausages imported into Germany from the United States during the calendar years 1897 and 1898, according to German official statistics.

Articles.	1897.		1898.	
	100 kilos.	*Pounds.*	*100 kilos.*	*Pounds.*
Bacon	152,224	33,559,607	261,014	57,543,668
Hams	26,353	5,809,835	43,344	9,555,705
Pork, prepared	18,688	4,119,994	71,609	15,787,063
Pork, fresh	14,501	3,196,919	13,912	3,067,067
Sausages (all kinds)	10,862	2,394,658	32,823	7,236,224
Total	222,628	49,081,013	422,702	93,189,727
Total tons[1]	....	21,911	....	41,603

[1] Tons of 2,240 pounds.

The above figures differ somewhat from the records of the Inspection Division of this Bureau, a difference which is probably to be explained in several ways; some meats certified for Germany have been imported into that country indirectly, and it is a well-established fact that not inconsiderable quantities of American meats have been admitted by certain German custom-houses without requiring the proper certificate. It is therefore impossible to give the exact quantity of American meat consumed in Germany. I am indebted to my colleague, Dr. A. M. Farrington, for the following table of quantities of pork certified for Germany by the Inspection Division:

Microscopic pork exported to Germany during the fiscal years ended June 30, 1892 to 1898, inclusive.

	Pounds.
1892	19,678,726
1893	7,770,618
1894	16,752,858
1895	29,670,410
1896	17,483,468
1897	38,420,798
1898	107,224,109
Total	237,000,987

Part II.—A STATISTICAL REVIEW OF TRICHINOSIS IN GERMANY DURING THE EIGHTEEN YEARS 1881-1898 (Stiles).

Summary.—In order to have complete years for comparison the years 1881 and 1882 are accepted as representing a period before the exclusion of American meats, 1883–1891 as the period during the exclusion, and 1892–1898 as the period since the readmission.

To avoid the charge of misrepresentation attention is here especially directed to the fact that this arrangement does not take into account the fact that the decree of exclusion was issued on March 6, and went into effect thirty days later, while the decree of readmission is dated September 3, 1891. Accordingly, during several months of 1883 and 1891, American pork was admitted, but the trade of those few months was not very extensive.

Summarizing the outbreaks by years the following tables are obtained:

1860–1880: 8,491 cases, 513 deaths; average, 404$\frac{1}{3}$ cases, 24$\frac{3}{7}$ deaths.
1881–1898: 6,329 cases, 318 deaths; average, 351$\frac{11}{18}$ cases, 17$\frac{2}{3}$ deaths.
1860–1898: 14,820 cases, 831 deaths; average, 380 cases, 21 deaths.

Case-mortality.—1860–1880, 6.04 per cent; 1881–1898, 5.02 per cent; 1860–1898, 5.6 per cent.

Number of cases of trichinosis and deaths therefrom, 1881 to 1898, inclusive.

Year.	Prussia.		Saxony.		Other States.		Empire.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1881	387	10	177	1	3	0	567	11
1882	209	6	160	0	257	0	626	6
1881-1882	596	16	337	1	260	0	1,193	17
1883	637	71	155	5	15	0	807	76
1884	348	29	73	2	50	0	471	31
1885	365	17	154	7	16	0	535	24
1886	136	10	47	1	20	2	208	13
1887	294	15	234	26	293	9	821	50
1888	134	14	404	34	18	0	556	48
1889	216	15	41	0	1	0	258	15
1890	96	0	117	0	9	0	222	0
1891	175	12	30	0	15	5	220	17
1883-1891	2,401	183	1,255	75	437	16	4,093	274
1892	108	4	0	0	0	0	108	4
1893	28	1	0	0	10	0	38	1
1894	72	5	2	0	3	1	77	6
1895	358	4	3	0	1	0	362	4
1896	74	6	0	0	1	0	75	6
1897	141	6	2	0	1	0	144	6
1898	44	0	35	0	160	0	239	0
1892-1898	825	26	42	0	176	1	1,043	27
1881-1898	3,822	225	1,634	76	873	17	6,329	318

A classification of the cases and deaths arranged according to the source of infection is shown in the following table:

Summary for German Empire, 1881 to 1898, inclusive.

1881-1882.		1883-1891.		1892-1898.		Total.	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1,193	17	4,093	274	1,043	27	6,329	318
314	4	1,262	103	466	5	2,042	*a* 112
89	....	42	10	11	3	142	*b* 13
272	....	641	4	291	3	1,204	*c* 7
[1] [675	4]	[1,945	117]	[768	11]	[3,388	*d* 132]
....	....	63	....	....	....	63	(*e*)
199	1	589	76	86	7	874	*f* 84
195	3	896	61	79	6	1,170	*g* 70
30	....	63	5	58	....	151	*h* 5
77	6	525	15	45	2	647	*i* 23
17	3	1	....	....	....	18	*j* 3
....	....	11	....	7	1	18	*k* 1

Totals divided as follows:

a Due to meat which, it would appear, was inspected and passed as free from trichinæ.

b Due to meat which was condemned, and usually buried, or was known to be trichinous, but was nevertheless used without proper safeguarding.

c Due to other defects in the inspection system.*

* As "other defects" in the inspection system may be included: Meat was eaten before results of the inspection were known; meat was inspected, but inspector suppressed the results of the examination; meat was stamped as free from trichinæ before inspection was ended; meat was marked in the inspection book as free from trichinæ; meat appears to have been smuggled around the inspection; inspector refused to examine meat; meat should have been inspected, but was not; buried hog (inspected ?) was dug up and eaten, etc.

d Total cases and deaths which may be attributed to errors in the inspection system.

e Additional cases may or may not have been due to inspected meat.

f Definitely stated that meat was not inspected, or that no inspection existed; source of infection apparently known.

g Source of infection known, but details regarding inspection not given, or insufficient to warrant conclusion.

h Definitely stated that source of infection was not known or could not be traced.

i No data given regarding meat, or data insufficient to classify.

j Alleged to have been due to American meats. (See p. 156 ff.)

k Additional cases due to uninspected meat (of Russian origin).

[1] See note, p. 43.

In judging of the efficiency of the microscopic inspection, it is important to note that, according to the information at hand, 3,388 cases, with 132 deaths, appear to have been due to faults of the German inspection; this represents over 53 per cent of the total (6,329) number of cases and over 41 per cent of the total (318) number of deaths. When this is compared with the (approximately) 900 cases recorded for America (where we do not microscopically inspect our pork for home consumption—cases extending over about twice as many years as cited for Germany)—it can not be admitted that the German microscopic inspection system is a hygienic measure which it would be well to introduce into this country. On the contrary, it would appear that it is much better for us to rely upon our methods of curing and cooking rather than to expend between $3,000,000 and $4,000,000 annually to introduce a system which has a decided tendency to give the public a false sense of security, and, furthermore, a system which would unquestionably result in extending that exceedingly unhygienic German custom (*Unsitte*) of eating raw or rare pork.

In judging of the relations of certified American pork to the German statistics, it is essential to notice that—

(1) During the exclusion of American pork (1883–1891), Germany reports a total of 4,093 cases, 274 deaths, giving an annual average of $453\frac{7}{9}$ cases, with $30\frac{4}{9}$ deaths.

(2) Since its readmission (1892–1898), 1,043 cases, 27 deaths, have been reported, giving an annual average of 149 cases, $3\frac{6}{7}$ deaths.

(3) Thus, as there has been an actual decrease of $304\frac{7}{9}$ cases, and $26\frac{37}{63}$ deaths, per year, it can not possibly be maintained that American pork has caused any increase in trichinosis in Germany.

(4) During the exclusion, the source of the infection appears not to have been established (or reported) in 588 cases, representing 14.3 per cent of the 4,093 cases reported.

(5) Since the readmission the source appears (from present data) not to have been established (or reported) in 103 cases, representing 9.87+ per cent of the 1,043 cases reported.

(6) This reduction in the percentage of cases of unestablished or unpublished sources would seem to indicate that since American pork has been used in Germany the authorities have increased their efforts in tracing the origin of infection.

(7) And if with this apparently increased vigilance, 940 cases, or 90.12+ per cent, have been traced, *and not a single one of these has ever been even alleged to have been due to American pork*, it would not appear justifiable for anyone to advance the claim that the remaining 103 cases (average of $14\frac{5}{7}$ cases per year, or 9.87+ per cent) were due to American meat.

(8) Especially is such claim not justifiable in view of the fact that during the exclusion of our products 588 cases (average of $65\frac{1}{3}$ cases per year, or 14.3 per cent) occurred, the source of which is not given.

(9) It can not therefore be admitted that the systematic attacks upon American pork found in the German agrarian press find any support in the accessible German health statistics.

(10) Of the 18 cases, 3 deaths, which are alleged to have been due to American pork during 1881–1883, it may be remarked that Virchow, the leading pathologist in Germany, and Fränkel, one of Germany's leading sanitarians, have not admitted the evidence as valid, nor is the evidence accepted by Hertwig, Brouardel, or Wasserfuhr. (See p. 168.)

(11) Thus it must be submitted that the sanitary quality, with reference to this disease, of American pork exported to Germany, is vindicated by a summary of German statistics, based upon German evidence.

(12) And even the suggestion is not entirely unjustified that a total prohibition of the use of German pork in Germany and the compulsory use of American pork would probably do more to eradicate trichinosis than does their elaborate and expensive microscopic inspection.

It can not justly be replied to this that the freedom from trichinosis due to American pork is accounted for by the German reinspection, for it may be conservatively estimated that not one-half of the American pork consumed has been reinspected in Germany. Furthermore, the fact that over one-half of the cases of this disease which occur are directly traceable to faults in the German inspection does not support the view that the reinspection is a very important factor in the case.

It is not the intention of the author to maintain *that it would be absolutely impossible under any circumstances for a single case of trichinosis* to arise in Germany from the use of American pork; his claim simply is that a compilation of the German evidence fails to show that a single case of the disease has been traced to the more than 200,000,000 of pounds of American pork exported to Germany during the fiscal years 1892–1898; and a study of the statistics does not support the view that the microscopic inspection gives a greater protection than the curing methods. He is therefore forced to the conclusion that, from the practical experience of the German people with immense quantities of American pork, there is no sanitary justification for the numerous systematic and, too often, rabid attacks upon this article of diet, which is so important to the thousands of German factory hands who live by the manufacture of articles exported to the United States, as well as to thousands of other Germans.

It might here be remarked that for nearly two years past there has been a standing offer in Germany, issued by an association of importers of American meats, of a reward of 1,000 marks ($238) for the first person who can prove a case of trichinosis in man in Germany due to American cured meats or sausages imported under the American certificate since 1891. Recent information is to the effect that no one has claimed the reward.

The outbreaks of trichinosis compiled in this report are arranged as follows:

A. Prussia: (1) By years and outbreaks, p. 43; (2) By Regierungs-Bezirke,[1] p. 99. B. Saxony, by years, p. 134. C. Other German States: (1) Bavaria, p. 146; (2) Brunswick, p. 147; (3) Bremen, p. 149; (4) Alsace-Lorraine, p. 150; (5) Hamburg, p. 152; (6) Lübeck, p. 153; (7) The rest of Germany, p. 153.

Minimum statistics.—The following statistics make no pretense of being complete, but they are by far the most complete statistics on the subject ever published. In considering them, however, we should take them as minimum figures, since they are open to the same seven[1] chances of error which are common to statistics on all other diseases compiled from literature.

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[1] In the statistics to follow, this designation will, for sake of space, be abbreviated to "R.-B."

Double arrangement of statistics.—In studying a disease statistically it is well at the same time to consider it both geographically and chronologically. This is advisable for several reasons, of which only the following will here be mentioned: When considering the statistics geographically we are occasionally able to draw more or less general conclusions regarding the habits of the country, which explain the frequency or infrequency of a given disease in certain districts. This arrangement of the statistics amounts in some cases to practically a geographical summary of the outbreaks we study chronologically. On the other hand, studying a disease chronologically frequently leads to more or less general conclusions regarding changes in the conditions which take place from time to time. Each arrangement is the complement of the other.

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[1] From the very nature of things, all medical statistics compiled from literature are open to at least seven chances of error; but, taking all these chances into consideration, the figures obtained by adding the cases and deaths published may confidently be looked upon as minimum statistics. These chances of error in the present compilation are:

First. Many cases of disease which actually occur do not come to the knowledge of the authorities. The Prussian statistician, Eulenberg, has recognized this in connection with trichinosis in stating: "Leider gelangen nicht alle Fälle von Erkrankungen zur Anzeige; man kann vielmehr annehmen, dass eine weit grössere Menge derselben unbekannt bleibt." If Eulenberg could not make his statistics for Prussia complete, it can not be expected that I should be able to do so.

Second. In the case of many outbreaks, the number of cases and deaths given by different recorders do not agree. It is, of course, often impossible for the compiler to decide which report is more exact, but I have endeavored to follow *official* statistics, except in those cases where I had reason to believe that unofficial statistics were more exact.

Third. Not infrequently authors record "several" cases, or "many" cases, or "a great number" of cases. In such outbreaks I have endeavored to come within the limits of probability, but I may naturally have counted too few or too many cases to the outbreak in some instances. For "several" cases I have usually followed former authors by adopting "3" as the approximate number. Nath (1885, p. 117) in his official report for Regierungs-Bezirk Königsberg, definitely states that he has omitted such cases from his statistics.

Fourth. It is very probable that some published cases have escaped my attention.

Fifth. Because of lack of details in some instances it is difficult or impossible to decide whether two publications refer to the same or to different outbreaks.

Sixth. Some authorities give the name of the town, others the name of the district, in which the outbreak occurred; unless the number of cases agree it is difficult to determine whether the two references refer to the same or to different outbreaks.

Seventh. Some authors give their statistics in such a way that it is impossible to tell whether their deaths are included among their cases or are additional to their cases.

In the following studies the years 1881–1898 have been taken as a basis for more careful consideration, (1) because it is only since 1881 that most of the Prussian districts have issued local reports, and (2), on account of the official suppression of information by a secret order (see p. 21), the author, to his regret, finds it necessary to reject statistics issued after 1898.

Explanation of bibliographic citations.—In order to avoid repeated citation of full titles, the author's name, with date and page, is given. Reference should be made to Part IV (Bibliography) for the full title of works consulted.

A. KINGDOM OF PRUSSIA.

1860 to 1880: More than 5,575 cases, 448 deaths.
1881 to 1898: More than 3,822 cases, 225 deaths.

1860 to 1880.

Summary.—The statistics for Prussia prior to 1881 are very incomplete and greatly scattered. In many of the articles it is difficult to ascertain the exact number of cases or the exact location of the outbreak. My summary for the twenty-one years in question, based upon outbreaks compiled about four years ago, shows a total of 5,575 cases, 448 deaths, or an annual average of $265\frac{10}{21}$ cases, $21\frac{1}{3}$ deaths. There can scarcely be any doubt but that these figures fall below the actual statistics.

1881 to 1898.

Summary by source of infection.—A summary of the cases with reference to the source of infection is rather unsatisfactory, since satisfactory details are lacking in numerous cases, and the accounts given of many cases may be interpreted in various ways by different authors. Furthermore, while judging a report, it is constantly necessary to hold in mind the numerous regulations existing in different parts of the Kingdom. Accordingly, probably no two authors would agree exactly upon a summary. The following table, however, can be taken as being an approximately fair statement. If anyone is inclined to disagree with it he should place the responsibility of error upon the careless and incomplete—often equivocal—manner in which many of the outbreaks were reported.

Summarizing these cases in a table giving the source of infection for the periods 1881 and 1882, 1883–1891, 1892–1898, 1881–1898, the following table is obtained:

Summary of Prussian outbreaks, 1881–1898.

1881–1882.		1883–1891.		1892–1898.		1881–1898.	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
596	16	2,401	183	825	26	3,822	225
314	4	1,084	98	305	5	1,703	a 107
89	....	42	10	11	3	142	b 13
5	....	145	3	286	3	436	c 6
[1] [408	4]	[1,271	111]	[602	11]	[2,281	d 126]
....	....	38	....	....	....	38	(e)
57	1	293	32	56	7	406	f 40
21	2	265	20	76	6	362	g 28
20	....	62	5	58	....	140	h 5
74	6	461	15	26	1	561	i 22
16	3	....	....	....	....	16	j 3
....	....	11	....	7	1	18	k 1

Totals divided as follows:

a Due to meat which, it would appear, was inspected and passed as free from trichinæ.

b Due to meat which was condemned and would have been buried if the usual practice had been followed, or which was known to be trichinous, but nevertheless used without proper safeguarding.

c Due to other defects in the inspection system.*

* Meat was eaten before result of inspection was known; or meat was inspected, but the inspector suppressed the result of the inspection; or meat was stamped as free from trichinæ before inspection was ended; or meat was marked in book as free from trichinæ; or meat appears to have been smuggled around the inspection; or inspector refused to examine meat; or several hogs were slaughtered and only a part of them inspected; or meat should have been inspected, but was not.

d Total cases and deaths which may be attributed to faults of inspection system.

e Additional cases may or may not have been due to inspected meat.

f Definitely stated that the meat was not inspected; hence source of infection known.

g Source of infection known, but details regarding inspection not given or not sufficient to justify conclusion.

h Definitely stated that source of infection was not known or could not be traced.

i No data given regarding meat, or data insufficient to classify.

j Alleged to have been due to American meat; evidence not accepted by Virchow and Fränkel, but admitted by Ostertag.

k Additional cases due to uninspected meat of Russian origin.

[1] See note, p. 43.

From this it would appear that Prussia has had 3,822 cases, 225 deaths, during the eighteen years in question, or an average of $212\frac{1}{3}$ cases, $12\frac{1}{2}$ deaths, per year. For the years of exclusion of American meats (1883–1891) 2,401 cases, 183 deaths, are reported, or an average of $266\frac{7}{9}$ cases, $20\frac{1}{3}$ deaths, per year. For the years (1892–1898) since the readmission, 825 cases, 26 deaths, have been collected, or an average of $117\frac{6}{7}$ cases, $3\frac{5}{7}$ deaths, per year; thus showing not an increase, but an actual decrease of $149\frac{1}{9}$ cases, $16\frac{5}{8}$ deaths, per year, for the time when American meat was imported.

Of the total 3,822 cases it would appear that 1,703, or 44.5 per cent,

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were due to meat which was inspected and passed as free from trichinæ, while a total of 2,281 cases, or 59.6 per cent, was due to this and other faults of the German inspection.

For the exclusion period (1883–1891) the source of 523 cases, or 25.9 per cent (of the 2,401 cases), was either not known or I have failed to find the source of infection; the possibility is, of course, not excluded that I have overlooked it. For the years (1892–1898) since the readmission, the source of 84 cases, or 10.1 per cent (of the 825 cases), was either not known or not published or has been overlooked.

Not a single case has been reported as due to certified American meats, but 16 cases, 3 deaths, have been attributed to uncertified meats in 1881.

The author is therefore unable to find in the Prussian health statistics any practical experience of the consumers of American pork which could be taken as basis for the numerous press attacks which appear upon our goods in that Kingdom.

1. PRUSSIAN CASES (1881-1898) ARRANGED BY YEARS AND OUTBREAKS.

NOTE.—In the following statistics figures inclosed in brackets [—— cases, —— deaths] are summaries, cross references, or repetitions, and are therefore not considered in making up the totals for the years. The deaths are included in the cases, hence not additional to them; thus, 24 cases, 1 death, signifies 24 cases, 1 of which was fatal.

1881: 387 cases, 10 deaths.

Summary for the year.—In a total of 387 cases, 10 deaths, it appears that 272 cases, 2 deaths, *were due to meat which was inspected and passed as free from trichinæ;* it is not improbable that several other cases also were due to inspected meat, but there is some chance for doubt. Several cases were due to eating meat before the result of the inspection was known. Sixteen cases, 3 deaths (Düsseldorf), were alleged to be due to American pork, but Virchow, Fränkel, and Ostertag (1895, p. 418) admit that the case lacks proof. The German Government considers American pork as the source of infection. Later Ostertag (1899, p. 506) states that American meat formed the source of infection. (See p. 173.)

No official or other sanitary reports for 1881 are accessible for the following Regierungs-Bezirke: Aachen, Aurich, Breslau, Coblenz, Danzig, Hannover, Hildesheim, Liegnitz, Magdeburg, Osnabrück.

No cases of trichinosis in man have been found in the official or other health reports for 1881 for the following Regierungs-Bezirke: Bromberg (Strahler, 1883), Coeslin (Massenbach, 1883, p. 39), Lüneburg (Alten, 1883, p. 22), Minden (Schultz-Hencke, 1883), Oppeln (Noack, 1883, p. 41), Schleswig-Holstein (Bockendahl, 1882, p. 19), Sigmaringen (Koch, 1883, p. 61), Stade (Bohde, 1883A, p. 26), Stralsund (Koehler, 1883), Trier (Schwartz, 1884, p. 48), Wiesbaden (Wagner [1882]).

Angerburg (Kreis), R.-B.[1] Gumbinnen .... 3 cases, 0 death.

Passauer, 1882, p. 104: The samples were sent to the inspector, who was not able at the time to make the inspection. He and his wife ate part of the samples, and both were taken sick with trichinosis. The meat was afterwards found to be trichinous. The Kreiswundarzt also observed another case of trichinosis, but details are not given. Accordingly, meat traced in two cases; details not given for the third.

Arnsberg (R.-B.) .... [24 cases, 1 death].

See Hoerde 18 (1), Linden 6.

Arnswalde, R.-B. Frankfurt .... 6 cases, 0 death.

Pistor, 1883, p. 44.

Berlin .... [21 cases, 2 deaths].

The statistics from different sources do not agree. Eulenberg, 1882, p. 349, Wernich, 1883, pp. 117, 118, and Ostertag, 1899, p. 497, give a total of 15 cases, 2 deaths.—Veröff., 1881, V, apparently gives only 9 hospital cases, 1 death.—If the dates given by various parties are correct, there was apparently a total of about 21 cases, 2 deaths. Wernich adds to his report that it is not known to what extent American hams are examined in Berlin, but during "this year, also, no case of disease was known to the police in connection with which the suspicion arose that it was due to American hams."—Salmon, 1884, p. 486: 15 cases.—For details of statistics, see separate outbreaks below.

Berlin, January 2–8 .... 2 cases, 0 death.

Veröff., 1881, V (3), p. 11: Hospitals; details not given, except one patient between 6 and 15 years old, and one between 31 and 60 years.

Berlin, February .... 1 case, 0 death.

Wernich, 1883, p. 117: Widow E. received a present of sausage from outside of the city; she had also bought some meat in Berlin; it is not determined in the report from which meat the infection arose.

Berlin, March 6–13 .... 1 case, 0 death.

Veröff., 1881, V (12), p. 59: Reports 1 case at hospitals March 6–13; patient between 16 and 30 years old.

Berlin, March 20–26 .... 1 case, 0 death.

Veröff., 1881, V (14), p. 71: Case at hospital; patient between 16 and 30 years old.—Wernich, 1883, p. 117: Servant M. H., Charité Hospital, March 20; this case probably belongs here.

Berlin, January 1–March 31 .... [5 cases, 0 death].

Veröff., 1881, V (21), p. 115: Hospitals; one patient between 6 and 15 years; two between 16 and 30; two between 31 and 60 years old.—Veröff., 1882, VI (21), p. 115.

Berlin, April .... 5 cases, 0 death.

Wernich, 1883, pp. 117, 118: "Several [5?] officers of the 1 Garde-Artillerie-Regiment. The suspected source of infection was sausage purchased in Berlin. The butcher claimed that all of his pork was inspected, but that he bought considerable meat from the market 'which is also undoubtedly brought in from outside of Berlin.'"—Eulenberg, 1882, p. 349: "Denn obgleich der Metzger sein Schweinefleisch regelmässig durch einen Sachverständigen untersuchen lässt, so liefert dieser Fall doch den Beweis, wie wenig die Untersuchung einzelner Stücke von ausgeschlachtetem Fleisch Garantie dafür bietet, dass letzteres trichinenfrei ist." According to Eulenberg, therefore, *the meat was inspected and passed as free from trichinæ.*

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[1] This abbreviation will be used in these statistics for "Regierungs-Bezirk."

Berlin, April .... 4 cases, 1 death.

Wernich, 1883, p. 117: F. Becker, wife, and children, had eaten of a ham received as a present from Coritten bei Neu-Cummersdorf. Several persons in Coritten also were taken sick from eating meat from the same hog. Trichinæ were afterwards found in the pork.

Berlin, May 15–21 .... 2 cases, 0 death.

Veröff., 1881, V (22), p. 119: Hospitals; patients between 31 and 60 years old.

Berlin, August 14–20 .... 1 case, 0 death.

Veröff., 1881, V (35), p. 189: Hospitals; patient between 16 and 30 years old.—Veröff., 1881, V (46), p. 245: 1 case, 0 death, in hospitals from July 3 to October 1.

Berlin, October 3 .... [1 case, 1 death].

Wernich, 1883, p. 117: Servant M., Krankenhaus Friedrichshain, October 3; died October 16. This is probably the same as the next entry, in which case there is an error in dates.

Berlin, October 9–22 .... 1 case, 1 death.

Veröff., 1881, V (43), p. 225: Case in hospital, October 9–15; patient between 15 and 30 years old.—Veröff., 1881, V (44), p. 231: Death in hospital, October 16–22. Both references are here assumed to be the same case. See also foregoing entry.

Berlin, October 12 .... 1 case, 0 death.

Wernich, 1883, p. 117: Servant P.; until ten days previous to being taken sick she had been in Steglitz, and Wernich assumes that she was "therefore undoubtedly infected outside of Berlin;" Bethanien Hospital.

Berlin, December 12 .... 2 cases, 0 death.

Wernich, 1883, p. 118: Meat was purchased in Berlin from a butcher, who stated that shortly before he had bought meat from Weissensee. It is, however, not shown that the Weissensee pork was the cause of the infection.

Bleicherode, Kr.[1] Nordhausen, R.-B. Erfurt, October ....
39 cases, 0 death.

Eulenberg, 1882, p. 350.—Richter, 1888, p. 113: As the inspector was discharged, *it would appear that the hog was inspected and passed as free from trichinæ.* "Die gerichtliche Untersuchung ist eingeleitet und der Fleischbeschauer seitens der Verwaltung seiner Stelle entsetzt worden." There occurred also, from same source of infection, 6 cases in Epschenrode, 2 in Grossbodungen, and 3 in Craga (q. v.).

Calau (Kr.), R.-B. Frankfurt a. O .... 4 cases, 2 deaths.

Eulenberg, 1882, p. 349.—Pistor, 1883, p. 44: 3 cases, 2 deaths.

Cassel (R.-B.) .... [49 cases, 0 death].

See Rotenburg, 26; Steinbach-Hallenberg, 15; and Wahlerhausen, 8.

Cologne [Köln] (R.-B.) .... [3 cases, 0 death].

See Cologne (Stadt).

Cologne, R.-B. Cologne .... 3 cases, 0 death.

Schwartz, 1882, p. 30: Ham came from Westphalia.

Coritten bei Neu-Cunersdorf, Kr. Oststernberg, R.-B. Frankfurt a.O.
[3 cases, 0 death].

Coritten bei Neu-Cummersdorf .... 3 cases, 0 death.

See Coritten. Wernich, 1883, p. 117: "Several cases." See also Berlin, April.

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[1] In this compilation this abbreviation will stand for "Kreis."

Craga, Kr. Nordhausen, R.-B. Erfurt .... 3 cases, 0 death.

Eulenberg, 1882, p. 350.—Richter, 1888, p. 113: See also Bleicherode. As the inspector was discharged, *it would appear that the hog was inspected and passed as free from trichinæ.*

Crüttinnen (Oberforsterei), Kr. Sensberg, R.-B. Gumbinnen.. 6 cases, 0 death.

Passauer, 1882, p. 104: Details not given.

Düsseldorf (R.-B.)............................ [16 cases, 3 deaths].

See Düsseldorf (Stadt).

Düsseldorf (Stadt), R.-B. Düsseldorf............ 16 cases, 3 deaths.

This outbreak is attributed to American pork by the German Government. The evidence is not accepted by Virchow, Hertwig, Brouardel, Fränkel, Wasserfuhr, or Ostertag (1895); in 1899 Ostertag accepts the evidence, but does not explain his change of opinion. See p. 000.

Ellrich, Kr. Nordhausen, R.-B. Erfurt............. 8 cases, 0 death.

Eulenberg, 1882, p. 350.

Epschenrode, Kr. Nordhausen, R.-B. Erfurt, October....... 6 cases, 0 death.

Eulenberg, 1882, p. 350.—Richter, 1888, p. 113: From same source as the Bleicherode cases. As the inspector was discharged, *it would appear that the hog was inspected and passed as free from trichinæ.*

Erfurt (R.-B.) .... [58 cases, 0 death].

See Bleicherode 39, Craga 3, Ellrich 8, Epschenrode 6, and Grossbodungen 2.—Salmon, 1884, p. 486; 58 cases.

Fischhausen (Kr.), R.-B. Königsberg .... 3 cases, 1 death.

Nath, 1885, p. 115. A family.

Frankfurt (R.-B.)............................ [21 cases, 2 deaths].

See Arnswalde, 6; Coritten, 3; Calau, 4 (2); Landsberg, 1; and Triebel, 7.—Salmon, 1884, p. 486; gives 10 cases.

———, R.-B. Frankfurt........................ [6 cases, 0 death].

Eulenberg, 1882, p. 349: Details not given. Possibly the same as Arnswalde.

Grossbodungen, Kr. Nordhausen, R.-B. Erfurt.... 2 cases, 0 death.

Richter, 1888, p. 113: See also Bleicherode. *It would appear that the hog was inspected and passed as free from trichinæ.*—Eulenberg, 1882, p. 350.

Gumbinnen (R.-B.)........................... [11 cases, 0 death].

See Angerburg, 3; Crüttinnen, 6; and Ragnit, 2.

Hettstedt, Mansfelder Gebirgskreis, R.-B. Merseburg, February.. 22 cases, 0 death.

Wolff, 1882, p. 9: *The hog was inspected and passed as free from trichinæ.* In 12 preparations afterwards made from this animal, the Kreisphysikus found on an average only one parasite in each slide. Yet under these circumstances, the inspector, who was not present when the samples were taken, was imprisoned three months.—Eulenberg, 1882, p. 350.

Hettstedt, Mansfelder Gebirgskreis, R.-B. Merseburg, June.. 120 cases, 0 death.

Wolff, 1882, p. 9: From two hogs which *were inspected and passed as free from trichinæ.* In the later examination an incapsulated trichina was found on every third to fifth preparation. The inspector, who was not present when the samples were taken, was imprisoned three months.—Eulenberg, 1882, p. 350: *The hog was inspected and passed as free from trichinæ.*—Chatin, 1883, p. 140, and R. Blanchard, 1887, p. 139: 150 cases cited, probably referring to both Hettstedt outbreaks.

Hoerde, Landkreis Dortmund, R.-B. Arnsberg (1880–81) ..... 18 cases, 1 death.

Schönfeld, 1884, pp. 144, 145: *The hog was inspected and passed as free from trichinæ.* "In Hoerde, Landkreis Dortmund, erkrankten um Mitte Dezember 1880 8 [18?] Personen, welche rohes Fleisch von einem Schweine, das von einem Metzger Reichardt dortselbst am 11. Dezember geschlachtet worden war, genossen hatten, an Erscheinungen, die bald die Diagnose der Trichinose ergaben. Der Metzger hatte angeblich das Fleisch mit der dreifachen Menge Rindfleisch vermengt 'zum Besten gegeben,' nachdem dasselbe von einem Fleischbeschauer für trichinenfrei befunden worden wäre. Letztere Angabe erwiess sich als unwahr, eine Untersuchung von Schweinefleisch dieses Metzgers hatte um jene Zeit überhaupt nicht stattgefunden; Fleischreste des Schweines waren nicht mehr beizubringen. Gleichwohl stellte sich eine andere Quelle der Invasion heraus. Bei der Revision der Fleischbestände des genannten Metzgers wurden Schinken und Speckseiten eines Schweines vorgefunden und als trichinenhaltig festgestellt, welches von einem Schumacher Rhode im October geschlachtet und *von dem amtlichen Fleischbeschauer Liessenhoff für trichinenfrei erklärt worden war.* Rhode war am 2. Novbr. drei erwachsene Kinder desselben waren am 16., 17. und 22. desselben Monats—nach der standesamtlichen Registrirung der Erstere an 'Schwindsucht,' die Letzteren an 'Nervenfieber'—gestorben. Eine der Leichen wurde exhumirt und es wurde an derselben durch legale Obduction Trichinose als Todesursache festgestellt. Theile desselben Schweines waren dem 2c. Reichardt zum Räuchern übergeben worden, letzterer hatte abgeschnittene Stücke derselben in seinen Nutzen verwendet und dadurch die Dezember-Erkrankungen verursacht. Es waren deren 18, unter ihnen die des 2c. Reichardt selbst. Nur eine derselben endete lethal am 11. Januar 1881. Liessenhoff, der nach Feststellung der Schuld sofort seines Amtes als Fleischbeschauer entsetzt worden, wurde durch Erkenntniss der Strafkammer des Königlichen Landgerichts zu Dortmund vom 19. October 1881 zu 6, 2c. Reichardt zu 3 Monaten Gefängniss verurtheilt und wurde die seitens der Verurtheilten eingelegte Revision verworfen."—Ann. d. M. P., 1881, p. 377.—R. Blanchard, 1887, p. 139: 13 cases.—Chatin, 1883, p. 140.

Königsberg (R.-B.) ..... [3 cases, 1 death].

See Fischhausen.

Landsberg, R.-B. Frankfurt ..... 1 case, 0 death.

Pistor, 1883, p. 44.

Linden, Landkreis Bochum, R.-B. Arnsberg ..... 6 cases, 0 death.

Schönfeld, 1884, p. 145: *The hog was inspected and passed as free from trichinæ* by "amtlichem Fleischbeschauer Wieg."

Löberitz, Kr. Bitterfeld, R.-B. Merseburg, November . 4 cases, 0 death.

Wolff, 1882, p. 9: *The hog was inspected and passed as free from trichinæ.* The inspector had examined 25 preparations without finding any worms.—Eulenberg, 1882, p. 350.

Marienwerder (R.-B.) ..... [3 cases, 0 death].

Official sanitary report not accessible. See, however, Stuhm, 3.

Merseburg (R.-B.) ..... [148 cases, 1 death].

See Hettstedt, 22, 120; Löberitz, 4; Schona, 2.

Wolff, 1882, p. 9: States 151 cases occurred. I can find only 148 cases.—Salmon, 1884, p. 486: 148 cases.

Münster (R.-B.) .... [1 case, 0 death].

See Werne.

Naugard, R.-B. Stettin .... 4 cases, 0 death.

Eulenberg, 1882, p. 349.—Weiss, 1883, p. 65: *The hog was inspected and passed as free from trichinæ.* "Dagegen wurde ein Fleischbeschauer zu Naugard durch rechtskräftig gewordenes Erkenntniss des Landgerichts zu Stargard vom 16. Juni v. J. wegen fahrlässiger Körperverletzung unter Vernachlässigung seiner Berufspflichten mit 1 Monat Gefängniss nebst Kostenauflegung verurtheilt, weil er nachweislich nicht, wie vorgeschrieben die Zwischenrippen-, Zungenwurzel-, Augenund Hals-Muskeln eines am 3. Dezbr. 1880, geschlachteten Schweines untersucht hatte, und in Folge des genossenen Fleisches 4 Personen etwa 3 Wochen an Trichinosis bettlägerig krank geworden waren."—Salmon, 1884, p. 486.

Neu-Ruppin, R.-B. Potsdam .... 2 cases, 0 death.

Kanzow, 1884, p. 41: Kanzow states that the hog was "rechtzeitig" inspected and found to be trichinous, and adds that these two persons probably ate the pork at the time the animal was slaughtered.

Obernik (Kreis), R.-P. Posen .... 10 cases, 0 death.

Gemmel, 1883, p. 17: Several places were involved. The hogs were slaughtered for home consumption and were evidently not examined; exact number of cases not given. Gemmel also intimates that cases occur which do not come to the knowledge of physicians.—Eulenberg, 1882, p. 349: Number not given.

Posen (R.-B.) .... [20 cases, 0 death].

See Obernik, 10; and Posen (Stadt), 10.

Posen (Stadt), R.-B. Posen .... 10 cases, 0 death.

Gemmel, 1883 A, p. 17: The butcher was imprisoned. The exact number of cases in this epidemic is not given. Gemmel refers to it as a case of "Massenerkrankungen," but in "mässigem Umfange."

Potsdam (R.-B.) .... [5 cases, 0 death].

See Neu-Ruppin, 2; and Zehlendorf, 3.

Ragnit (Kr.), R.-B. Gumbinnen .... 2 cases, 0 death.

Passauer, 1882, p. 104.

Rotenburg, R.-B. Cassel, March .... 26 cases, 0 death.

Rockwitz, 1888, p. 233: *The hog was inspected and passed as free from trichinæ.* The butcher slaughtered 7 hogs, all of which were passed. Afterwards the disease broke out and was traced to a certain animal. The Kreisphysikus examined 200 preparations from what remained and found trichinæ in only 5 of them. The inspector was acquitted.

Schona, Kr. Schweinwitz, R.-B. Merseburg, December . 2 cases, 1 death.

Wolff, 1882, p. 9: *The hog was inspected and passed as free from trichinæ.* The Kreisphysikus afterwards examined the muscles of the eye and found 4 parasites in the first 5 preparations; in the next 15 slides none were found; in 20 other preparations examined by another party none were found; in 100 preparations made from other parts of the body, 12 trichinæ were found. The inspector had examined 15 preparations and found no parasites. Patient died January 3, 1882. The inspector was fined 30 marks and imprisoned six days.—Eulenberg, 1882, p. 350: *The hog was inspected and passed as free from trichinæ.* Afterwards 12 trichinæ were found in 100 preparations.

Steinbach-Hallenberg, Kr. Schmalkalden, R.-B. Cassel, March .... 15 cases, 0 death.

Rockwitz, 1888, p. 233: *The hog was inspected and passed as free from trichinæ.*

Stettin, (R.-B.) .... [4 cases, 0 death].

See Naugard.

Stuhm, R.-B. Marienwerder .... 3 cases, 0 death.

Eulenberg, 1882, p. 349: Imported [from where?]. Cervelat sausage.—Salmon, 1884, p. 486.

Triebel, R.-B. Frankfurt .... 7 cases, 0 death.

Pistor, 1883, p. 44.

Wahlerhausen, Kr. Cassel, R.-B. Cassel .... 8 cases, 0 death.

Rockwitz, 1888, pp. 223–234: Source of meat not known.

Werne, R.-B. Münster .... 1 case, 0 death.

Hoogeweg, 1882, p. 59: Contracted in Arnsberg; details insufficient.

Zehlendorf, R.-B. Potsdam .... 3 cases, 0 death.

Kanzow, 1884, p. 41: "Several" cases. Source of meat could not be traced.

1882: 209 cases, 6 deaths.

Summary for the year.—In a total of 209 cases, 6 deaths, 42 cases, 2 deaths, appear to have been *due to pork which was inspected and passed as free from trichinæ;* besides these, 8 cases, 1 death, may have been due to inspected pork, but there is some doubt regarding the facts; 89 cases were due to condemned meat; no cases are attributed to American pork.

No official or other sanitary reports for 1882 are accessible for the following Regierungs-Bezirke: Aachen, Aurich, Coblenz, Danzig, Düsseldorf, Frankfurt, Hannover, Liegnitz, Magdeburg, Osnabrück.

No cases of trichinosis in man for 1882 were found in the official sanitary reports or from other sources for the following Regierungs-Bezirke: Arnsberg (Schönfeld, 1884), Bromberg (Strahler, 1883), Coeslin (Massenbach, 1884), Lüneburg (Alten, 1884, p. 52), Marienwerder (Pianka, 1884, p. 25), Minden (Schultz-Hencke, 1884, p. 58), Münster (Hoogeweg, 1883), Oppeln (Noack, 1884), Potsdam (Kanzow, 1884, p. 76), Schleswig-Holstein (Bockendahl, 1883, p. 13), Sigmaringen (Koch, 1887), Stade (Bohde, 1883 B, p. 29), Stettin (Weiss, 1884), Trier (Schwartz, 1884, p. 48), Wiesbaden (Wagner [1883], p. 39).

Berlin, June .... 3 cases, 0 death.

Eulenberg, 1883, p. 338: *It was claimed that the hog was inspected and passed as free from trichinæ,* but Eulenberg thinks this claim doubtful.—Pistor, 1884, p. 106: It was claimed that the hog was brought into the city from the outside and was provided with an inspection stamp, but this could not be proven. "So far as known, in this year also no cases of trichinosis occurred as a result of eating American ham."—Salmon, 1884, p. 486.—Ostertag, 1899, p. 497.

Breslau (R.-B.) .... [7 cases, 1 death].

See Floriansdorf, 1 (1); and Karzen, 6.

Cassel (R.-B.) .... [35 cases, 0 death].

See Deissel, 4; Naumburg, 12; Meimbressen, 1; Rotenburg, 6; and Vaake, 12.

Cologne (R.-B.) .... [89 cases, 0 death].

See Cologne (Stadt), 89.

Cologne, R.-B. Cologne, June .... 89 cases, 0 death.

Schwartz, 1883, pp. 33–35: 89 cases, 0 death; among the troops; *hog had been condemned, but was sold and eaten without proper precautions.*—Eulenberg, 1883, p. 338; 60 cases; Westph. Infanterie 16; *hog was known to be trichinous.*—Chatin, 1883, p. 140.—Salmon, 1884, p. 486: 60 cases.—R. Blanchard, 1887, p. 139.

Deissel, Kr. Hofgeismar, R.-B. Cassel .... 4 cases, 0 death.

Rockwitz, 1888, p. 234: Home-slaughtered hog. Not inspected.

Erfurt (R.-B.) .... [15 cases, 1 death].

See [Freihagen, 10 (1)]; Heiligenstadt, 5; and Siegbergsmühle, 10 (1).

Floriansdorf, Kr. Schweidnitz, R.-B. Breslau .... 1 case, 1 death.

Wolff, E., 1884, p. 19: *The hog was inspected and passed as free from trichinæ.*

Freihagen, R.-B. Erfurt .... [10 cases, 1 death].

Eulenberg, 1883, p. 339: *The hog was inspected and passed as free from trichinæ.* Probably the same as Siegbergsmühle.

Freiheit b. Osterode, R.-B. Hildesheim .... 7 cases, 0 death.

Wittichen, 1884, p. 30: Diagnosis from symptoms.

Glandau bei Landsberg, Kr. Eylau, R.-B. Königsberg .... 5 cases, 0 death.

Nath, 1885, p. 115: Hog not inspected. It is not clear from the report whether this outbreak was in 1881, 1882, or 1883.

Gumbinnen (R.-B.) .... [24 cases, 2 deaths].

See Lyck, 6; Oletzko, 15 (2); Rauben, 3.

Heiligenstadt, R.-B. Erfurt, December .... 5 cases, 0 death.

Eulenberg, 1883, p. 338.—Salmon, 1884, p. 486: 4 cases.—Richter, 1888, p. 114: The source of infection could not be definitely determined, it is stated, although it is also stated that all patients had eaten raw meat of a hog slaughtered on November 30. In the remaining meat no trichinæ were found. Diagnosis made on symptoms. It is not stated whether the meat was inspected.

Hildesheim (R.-B.) .... [7 cases, 0 death].

See Freiheit, 7.

Karzen, Kr. Nimptsch, R.-B. Breslau .... 6 cases, 0 death.

Wolff, E., 1884, pp. 19, 69: Hog had not been inspected.

Königsberg (R.-B.) .... [14 cases, 0 death].

See Glandau, 5; Wehlau, 6; Wormditt, 3.

Lyck (Kr.), R.-B. Gumbinnen .... 6 cases, 0 death.

Passauer, 1883, p. 101: "Several" cases in two families. The hog had not been inspected.

Meimbressen, Kr. Hofgeismar, R.-B. Cassel .... 1 case, 0 death.

Rockwitz, 1888, p. 234: Hog slaughtered on Rittergut Hohenborn and not inspected.

Merseburg (R.-B.) .... [7 cases, 0 death].

See Wansleben, 7.

Naumburg, Kr. Wolfhagen, R.-B. Cassel, November .. 12 cases, 0 death.

Rockwitz, 1888, p. 234: *The hog was inspected and passed as free from trichinæ.* Afterwards, the Kreisphysikus examined 72 preparations and found only 16 trichinæ. Twenty-one preparations examined in succession failed to show the parasites.

Oletzko (Kr.), R.-B. Gumbinnen .... 15 cases, 2 deaths.

Passauer, 1883, p. 101: Details not given.

Posen (R.-B.) .... [5 cases, 1 death].

See Posen (Stadt), 5 (1).

Posen, R.-B. Posen .... 5 cases, 1 death.

Gemmel, 1883b, pp. 20, 21: Probably portions of more than 2 hogs were used in preparing the sausage. *One of these hogs was evidently inspected and passed as free from trichinæ.* The second hog could not be definitely determined. Some other meat was also used which was sent into the city from the outside. The case therefore remains unexplained. A family with boarders was taken sick. Exact number of cases not given. One death.

Posen, R.-B. Posen............................ [3? cases, 0 death].

Eulenberg, 1883, p. 338: "Several" cases. This reference may belong to the preceding outbreak.

Prohn, R.-B. Stralsund........................ 3 cases, 1 death.

Koehler, 1884, pp. 38, 52: Patient had eaten raw meat while making sausage; taken to hospital in Stralsund. Hog had not been inspected. Trichinæ found in woman on postmortem.

Rauben, Kr. Insterburg, R.-B. Gumbinnen, March.. 3 cases, 0 death.

Passauer, 1883, p. 101: Sausage (Rauchwurst).

Rotenburg, R.-B. Cassel........................ 6 cases, 0 death.

Rockwitz, 1888, p. 234: *The hog was inspected and passed as free from trichinæ. Same inspector had passed another trichinous hog in same town in 1881.* The inspector was acquitted upon the opinion submitted by Professor Raabe, of Hannover, that even with the most expert (gewissenhaftesten) examination of the meat, trichinæ may be overlooked.

Siegbergsmühle, Kr. Heiligenstadt, R.-B. Erfurt, December..
10 cases, 1 death.

Richter, 1888, pp. 113, 114: *The hog was inspected and passed as free from trichinæ.* The Kreisphysikus afterwards found numerous trichinæ present.

Stettin (Stadt? or R.-B.?) .... [5 cases, 0 death].

Zeitschr. f. Fleischbeschau u. Fleischprod., 1887, II (8), May, p. 99: "Im Januar 1882 erkrankten in Stettin 5 Personen nach dem Genusse von Fleischbrödchen, welche aus Rind- und Schweinefleisch in ungepökeltem und ungeräuchertem Zustande hergestellt waren. Bei sämmtlichen Erkrankten tratt Genesung ein." It seems very probable that this reference is to the 1885 outbreak.

Stralsund (R.-B.).............................. [3 cases, 1 death].

See Prohn, 3 (1).

Vaake, Kr. Hofgeismar, R.-B. Cassel .... 12 cases, 0 death.

Rockwitz, 1888, p. 234: Home-slaughtered hog; not inspected.

Wansleben, Mansfelder See Kreis, R. B. Merseburg, December..
7 cases, 0 death.

Wolff, 1883, p. 11: *The hog was inspected in November and passed as free from trichinæ.* After two persons had been taken sick the meat was reexamined, and, though a large number of preparations was made, only a few trichinæ were found.—Eulenberg, 1883, p. 338: 4 cases, 0 death. *The hog was inspected and passed as free from trichinæ.*—Salmon, 1884, p. 486: 4 cases.

Wehlau, R.-B. Königsberg .... 6 cases, 0 death.

Nath, 1885, p. 116: *The hog was inspected and passed as free from trichinæ.* Exact date not clear—1881, 1882, or 1883.

Wormditt, Kr. Braunsberg, R.-B. Königsberg .... 3 cases, 0 death.

Nath, 1885, pp. 115, 116: Trichina inspection is obligatory here, but this outbreak is not explained. "Entire family" taken sick. Exact date not clear—1881, 1882, or 1883.

1883: 637 cases, 71 deaths.

Summary for the year.—In a total of 637 cases, 71 deaths, 478 cases, 66 deaths, are stated to have been *due to meat which was inspected and passed as free from trichinæ.* Besides these 478 cases, at least 43 cases may have been due to inspected meat. One case at Cologne, alleged to have been due to American pork, can not be traced, unless it refers to a cat in which trichinæ were found. The Emersleben outbreak is of historic interest. The 20 cases of Strelno were due to meat known to be trichinous, but used in making sausage without being properly safeguarded. In 1883 the exclusion of American pork was decreed.

Official sanitary or other reports for 1883 are not accessible to the author for the Regierungs-Bezirke Breslau and Hildesheim.

No cases of trichinosis in man for this year were found in the official health reports or elsewhere for the following Regierungs-Bezirke: Aachen (Trost, 1887, pp. 49, 56), Arnsberg (Katerbau, 1888, p. 121), Aurich (Rapmund, 1887, p. 142), Cassel (Rockwitz, 1888, p. 35), Coblenz (Massenbach, 1887, p. 61), Danzig (Zeuschner, 1887), Düsseldorf (Weiss, 1888), Frankfurt a. O. (Wiebecke, 1888, p. 36), Hannovor (Becker, 1887), Liegnitz (Philipp, 1886), Lüneburg (Alten, 1887, p. 64), Minden (Schultz-Hencke, 1887, p. 73), Münster (Hölker, 1887, p. 51), Oppeln (Noack, 1887, p. 102), Osnabrück (Bitter, 1888), Posen (Gemmel, 1887, p. 14), Schleswig-Holstein (Bockendahl, 1887, p. 153), Sigmaringen (Koch, 1887), Stade (Bohde, 1887, p. 126), Stettin (Dieterich, 1887, p. 137), Stralsund (Koehler, 1887, p. 85), Trier (Schwartz, 1887), Wiesbaden (Wagner, 1886).

Berge bei Forst, R.-B. Frankfurt.................. [1 case, 0 death].

Eulenberg, 1885, p. 310: See Forst sub 1884.

Berlin.. [6 cases, 1 death].

See separate outbreaks.

Berlin, January .... 1 case, 1 death.

Veröff., 1883, VII (4), p. 15: Hospital; January 7–13; patient between 31 and 60 years old.—Veröff., 1883, VII (7), p. 29: Died January 28–February 3.—Eulenberg, 1885, p. 134: Krankenhaus Friedrichshain.—Pistor, 1887, p. 240: Source of infection not traced. Death January 30.

Berlin, April–June .... 1 case, 0 death.

Veröff., 1883, VII (20), p. 103: Hospital; April 28–May 5; patient between 16 and 30 years old.—Veröff., 1883, VII (38), p. 213: April 1–June 30.

Berlin, November 7.............................. 2 cases, 0 death.

Eulenberg, 1885, p. 134.—Pistor, 1887, pp. 240, 241: Noncommissioned officer and his wife. Source of infection could not be traced.

Berlin, November–December .... 1 case, 0 death.

Pistor, 1887, p. 241: Servant E. S. in Bethanien Hospital; November 23, 1883, to January 29, 1884. Meat could not be traced.

Berlin .... 1 case, 0 death.

Pistor, 1887, p. 241: A case was recorded in the daily papers, but it could not be traced by the authorities, as the person was not registered with the police.

Berlin .... [4 cases, 0 death].

Pistor, 1887, p. 240: Four doubtful cases, probably not trichinosis.

Bromberg (R.-B.) .... [20 cases, 2 deaths].

See Strelno.

Coeslin (R.-B.) .... [1 case, 0 death].

See Rummelsburg.

Cologne (R.-B.) .... [35 cases, 0 death].

See Cologne (Stadt).

Cologne, R.-B. Cologne, February .... 35 cases, 0 death.

Schwartz, 1884, p. 27.—Eulenberg, 1885, p. 135: *The hog had been inspected and passed as free from trichinæ.*

Cologne, R.-B. Cologne .... [1 case, ? death].

See p. 173.

Emersleben, Deesdorf, Nienhagen, R.-B. Magdeburg, September-December .... 403 cases, 66 deaths.

Brouardel, 1883, p. 1504: Extensive account to French Academy of Medicine: "Il aurait été examiné par le boucher et par l'inspecteur d'Emersleben, qui déclarèrent qu'il ne contenait pas de trichine. La bonne foi de ces deux personnes est hors de doute, car toutes deux mangèrent de la viande de ce porc et toutes deux furent malade."—Wagner, 1884, pp. 5, 6: "Sämmtliche 4 Schweine sind angeblich von dem gleichfalls in Emersleben ansässigen Fleischbeschauer untersucht und für trichinenfrei befunden worden. Abgesehen davon, dass in unserm Falle die Schweine gar nicht untersucht sein können, da sonst Trichinen hätten gefunden werden müssen[1] eine Ansicht, welche die in jener Gegend ansässigen Herren Aerzte theilten, liegt die Gefahr in zwei anderen Punkten: Ersten kann ein Fleischbeschauer wenn er die gesetzlich vorgeschriebene Prüfung in der Ausübung seines Amtes bummeln. So consultierte ein Fleischbeschauer Herrn Dr. Philipp wegen seines Mikroskopes, welches seit längerer Zeit nicht in Ordnung sei. Was fehlt dem Mikroskop? Die Objectivlinsen!"—Salmon, 1884, p. 486; 377 cases, 61 deaths.—Lesserhaft, 1885, p. 528: *The hog was inspected and passed as free from trichinæ.* "Das betreffende Schwein, von dem die Infection ausging, war sowohl von dem Fleischer als auch von dem gesetzlich angestellten Fleischbeschauer für trichinenfrei erklärt worden."—Von Madai, 1885, p. 528: 403 cases, 66 fatal; police statistics.—Voigt, 1887, p. 94: 270 cases, 53 deaths, in Emersleben; 133 cases, 13 deaths in surrounding places. "Wie auch in dem Emerslebener Fall beim Beginn der gerichtlichen Untersuchung das Fleisch des trichinösen Schweines bereits lange vorher beseitigt und die Identität desselben mit dem in dem Fleischbuche des Fleischbeschauers eingetragenen, nicht mit Sicherheit festgestellt war."—Veröff., 1889, p. 110: 403 cases, 66 deaths. "Kleine derartige Epidemien ohne Todesfall kamen an vier anderen Orten vor."—R. Blanchard, 1887, p. 137.—Mosler & Peiper, 1894, p. 305: "Als beklagenswerthe, aber immerhin doch vereinzelte Vorkommnisse sind die Epidemien, welche im Jahre 1883 in

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[1] "Die Königliche Staatsanwaltschaft zu Halberstadt theilt diese Meinung nicht. Der betreffende Fleischbeschauer * * * das eine war in der Voruntersuchung nachgewiesen und durch die Geständnisse des Fleischers und Fleischbeschauers bestätigt, dass sie ihre Bücher nachträglich vervollständigt haben, was jedenfalls eine Nachlässigkeit ihrerseits beweist."

Emersleben und Nienhagen durch ein Schwein hervorgerufen wurden, welches von dem amtlichen Fleischschauern für trichinenfrei erklärt worden war, anzusehen; 350 Personen erkrankten, 42 erlagen der Trichinosis. In Niederspier brach 1877 eine Epidemie aus, veranlasst durch ein Schwein, in welchem der Fleischbeschauer keine, Dr. Nicolai erst in circa 200 Präparaten zwei Muskeltrichinen nachwies."

Thus in connection with this outbreak accounts differ as to whether the hog was actually inspected for trichinæ, i. e., as to whether portions of the meat were actually under the microscope. When we read the statements given above by Wagner and the account of the condition of the inspectors in R.-B. Magdeburg by Voigt (see p. 116), we must conclude that it is perfectly possible that the inspector examined the hog. Whether he was *capable* of making a proper examination or not is an entirely different question.

Erfurt (R.-B.) .... [9 cases, 0 death].

See Mühlhausen.

Fischhausen (Kr.), R.-B. Königsberg, October–November.... 15 cases, 0 death.

Nath, 1885, p. 115.

Groitsch, Saalkreis, R.-B. Merseburg, December 25, 1882–January, 1883 .... 3 cases, 0 death.

Wolff, 1887, p. 88: Raw bratwurst. *The hog had been inspected and passed as free from trichinæ. The same inspector passed a second trichinous hog about January 9, 1883.*—Eulenberg, 1885, p. 134.

Gumbinnen (R.-B.)............................ [10 cases, 0 death].

See Tilsit.

Guttstadt, Kr. Heilsberg, R.-B. Königsberg, January–March. 8 cases, 1 death.

Nath, 1885, pp. 115, 116: Two families, in one of which there were 5 persons; in the other, 3 patients; a home-fed hog, which was not inspected.

Halle a. S., R.-B. Merseburg, January............. 5 cases, 0 death.

Wolff, 1887, p. 88: Hams came from Schafstedt. *The hog* (*slaughtered December 29, 1882*) *had been inspected and passed as free from trichinæ.* Same hog caused 4 cases in Schafstedt. Inspector forced to resign.—Eulenberg, 1885, p. 134.

Halle a. S., R.-B. Merseburg, September .... 8 cases, 0 death.

Wolff, 1887, p. 88: The *butcher claimed that the hog had been inspected and passed as free from trichinæ*, but the inspector advanced the claim that he could not have inspected the hog and missed the trichinæ, since he was always careful about his work.—Eulenberg, 1885, p. 134: "Bei der Vernehmung gab letzterer [the butcher] an, dass seine sämmtlichen Schweine von Fleischbeschauer S. auf Trichinen untersucht wurden und bewies die Richtigkeit seiner Behauptung, durch Vorlegung des Schlachtbuches. Der Fleischbeschauer erklärte seinerseits, dass er die Untersuchungen stets mit der grössten Gewissenhaftigkeit vorgenommen habe. Das Fleisch, welches die Trichinen enthalten habe, sei daher jedenfalls nicht von ihm untersucht. * * * Bei der Gutartigkeit der Erkrankungen erschien es sogar wahrscheinlich, dass das betreffende Schwein so wenig mit Trichinen durchsetzt war, dass dieselben selbst bei einer gewissenhaften Untersuchung unendeckt bleiben konnten."

Königsberg (R.-B.) .... [23 cases, 1 death].

See Fischhausen, 15; and Guttstadt, 8 (1).

Magdeburg (R.-B.) .... [426 cases, 66 deaths].

See Emersleben, 403 (66); and Wernigerode, 23.

Marienwerder (R.-B.) .... [59 cases, 1 death].

See Thorn. Reiche (1887, pp. 34, 35) gives no cases for this year under Zoonosen, but Eulenberg (1885, p. 134) cites 59 cases, 1 death, in Thorn and vicinity.

Merseburg (R.-B.) .... [40 cases, 0 death].

Veröff., 1888, p. 229.—Eulenberg, 1885, p. 134.—See Groitsch, 3; Halle, 5, 8 [Saalkreis]; Schafstedt, 4; and Walbeck, 20.

Mühlhausen, R.-B. Erfurt .... 9 cases, 0 death.

Richter, 1888, p. 114: Meat was eaten before the hog was inspected. The inspector found trichinæ present. Wife of the butcher was imprisoned for four weeks.

Plauen a. H., R.-B. Potsdam .... 5 cases, 0 death.

Kanzow, 1887, p. 44: Hog slaughtered for home use and not inspected. Afterwards trichinæ were found in meat.

Potsdam (R.-B.) .... [8 cases, 0 death].

See Plauen a. H., 5; Templin, 3.

Rummelsburg, R.-B. Coeslin .... 1 case, 0 death.

Wernich, 1887, p. 163: A woman tasted of meat while making sausage. The hog was afterwards found to be trichinous.

Saalkreis, R.-B. Merseburg .... [3 cases, 0 death].

Eulenberg, 1885, p. 133: *The hog had been inspected and passed as free from trichinæ. The same inspector passed another hog as free from trichinæ in which another inspector found the parasites.* This is probably the same as Groitsch.

Schafstedt, R.-B. Merseburg, January .... 4? cases, 0 death.

Wolff, 1887, p. 88: *Hog had been inspected and passed as free from trichinæ.* See also Halle. Husband, wife, and "children."—Eulenberg, 1885, p. 134.

Strelno and vicinity, R.-B. Bromberg .... 20 cases, 2 deaths.

Strahler, 1887, p. 56: *The meat had been inspected and was known to contain trichinæ, but the butcher used it in sausage.*

Templin, R.-B. Potsdam .... 3 cases, 0 death.

Kanzow, 1887, p. 44: Entire family (3 ?); early in the year. The hog was slaughtered for home use and was not inspected. Afterwards trichinæ were found.

Thorn and vicinity, R.-B. Marienwerder .... 59 cases, 1 death.

Eulenberg, 1885, pp. 133, 134: Stadt Thorn, 48 cases, 1 death; Kreis Thorn, 11 cases.

Tilsit, R.-B. Gumbinnen, March .... 10 cases, 0 death.

Passauer, 1887, p. 142: In the garrison. *It was suspected that the meat had been inspected and passed as free from trichinæ,* but this was not proved.

Walbeck, near Hettstedt, R.-B. Merseburg, October ....
20 cases, 0 death.

Eulenberg, 1885, p. 135: *The hog had been inspected and passed as free from trichinæ.*—Wolff, 1887, pp. 88, 89: In 50 preparations which were afterwards made, no trichinæ were found.

Wernigerode, R.-B. Magdeburg .... 23 cases, 0 death.

Voigt, 1887, p. 94: Evidently several epidemics; details not given. Identification of meat with inspected meat was not proved, as all the meat was gone.

1884: 348 cases, 29 deaths.

Summary for the year.—In a total of 348 cases, 29 deaths, 157 cases, 12 deaths, appear to have been *due to pork which was inspected and passed as free from trichinæ.* One case, 1 death (Breslau), was due to meat which was condemned and sent to the rendering establishment, but was eaten. Ten cases (Kobylepole) were due to meat which should have been inspected but was not.

Official or other reports for 1884 are not accessible for the Regierungs-Bezirk Hildesheim.

No cases of trichinosis in man for this year were found in the official health reports or elsewhere for the following Regierungs-Bezirke: Aachen (Trost, 1887, pp. 49, 56), Arnsberg (Katerbau, 1888, p. 121), Aurich (Rapmund, 1887, p. 142), Coblenz (Massenbach, 1887, p. 61), Coeslin (Wernich, 1887, p. 163), Cologne (Schwartz, 1887), Danzig (Zeuschner, 1887), Düsseldorf (Weiss, 1888, p. 95), Erfurt (Richter, 1888, p. 114), Hannover (Becker, 1887), Liegnitz (Philipp, 1886), Lüneburg (Alten, 1887, p. 64), Minden (Schultz-Hencke, 1887, p. 73), Münster (Hölker, 1887, p. 51), Osnabrück (Bitter, 1888), Schleswig-Holstein (Bockendahl, 1887, p. 153), Sigmaringen (Koch, 1887), Stade (Bohde, 1887, p. 126), Stettin (Dieterich, 1887, p. 137), Stralsund (Koehler, 1887, p. 85), Trier (Schwartz, 1887), Wiesbaden (Wagner [1886]).

Ahrensfelde, Kr. Niederbarnin, R.-B. Potsdam .... 6 cases, 0 death.

Kanzow, 1887, p. 62: Hog was slaughtered for home use and was not inspected. Later examination showed it to be trichinous.

Barraginn, Kr. Gerdauen, R.-B. Königsberg ...... 5 cases, 1 death.

Nath, 1887, pp. 50, 51: Details not given.

Bartenstein, Kr. Friedland, R.-B. Königsberg.... 6 cases, 0 death.

Nath, 1887, pp. 50, 51: Meat was not inspected.

Belleben and Alsleben, Mansfelder Gebirgskreis, Merseburg, May .. 4 cases, 0 death.

Eulenberg, 1885, p. 309: See also Strenz-Naundorf. *The hog was inspected and passed as free from trichina.*

Belleben, Mansfelder Gebirgskreis, R.-B. Merseburg, December.... 2 cases, 0 death.

Eulenberg, 1885, p. 309: *The hog had been inspected and passed as free from trichina.* Eulenberg also reports 3 other cases from this district. See Leimbach.—Wolff, 1887, p. 89.

Berlin .... [At least 10 cases, 1 death].

See separate entries.

Berlin, January .... 2 cases, 0 death.

Pistor, 1887, p. 241: Widow K. R. and daughter. Probably due to meat sent from Potsdam, since the wife of the person who sent the meat was also taken sick with trichinosis. See Potsdam.—Eulenberg, 1885, p. 310. December 25, 1883.

Berlin .... [1 case, 0 death].

Berlin, April 20–26 .... 4 cases, 1 death.

Veröff., 1884, VIII (18), p. 85: Hospital; one patient between 6 and 15 years old; one between 16 and 30 years old; two between 31 and 60 years old.—Veröff., 1884, VIII (22), p. 109: Death between May 18–24.

Berlin, June 8–14 .... 1 case, 0 death.

Veröff., 1884, VIII (25), p. 123: Hospital; patient between 16 and 30 years old.

Berlin, June 15–21 .... 1 case, 0 death.

Veröff., 1884, VIII (26), p. 127: Hospital; patient between 16 and 30 years old.

Berlin, November 2–8 .... 1 case, 0 death.

Veröff., 1884, VIII (46), p. 227: Hospital; patient between 2 and 5 years old.

Birnstein and Fischborn, Kr. Gelnhausen, R.-B. Cassel.... 5 cases, 0 death.

Rockwitz, 1888, p. 235: *The hog was inspected and passed as free from trichinæ.*

Breslau (R.-B.) .... [4 cases, 1 death].

See Breslau, 1 (1); and Nicolaivorstadt, 3.

Breslau, R.-B. Breslau .... 1 case, 1 death.

Wolff, E., 1887, p. 56: *The hog had been condemned and sent to the rendering establishment.* A part of it was eaten and resulted in one death.

Bromberg (R.-B.) .... [11 cases, 0 death].

See Gnesen, 3; and Wirzitz, 8.

Burdungen, Kr. Neidenburg, R.-B. Königsberg .. 16 cases, 2 deaths.

Nath, 1887, pp. 50, 51: See also Ortelsburg; Rauchwurst, home-slaughtered.

Cassel (R.-B.) .... 51 cases, 0 death.

See Birnstein, 5; Grosswiden, 6; and Schmalkalden, 40.

Fischborn, Gelnhausen, R.-B. Cassel.

See Birnstein.

Forst, R.-B. Frankfurt a. O .... 1 case, 0 death.

Eulenberg, 1885, p. 310: Meat not inspected. End of 1883. Eulenberg adds that unfortunately not all cases of trichinosis are recorded, but that it may be assumed that a very large number remain unknown: "Leider gelangen nicht alle Fälle von Erkrankungen zur Anzeige; man kann viel mehr annehmen, dass eine weit grössere Menge derselben unbekannt bleibt."

Frankfurt a. O. (R.-B.) .... [2 cases, 0 death].

See Forst, 1; and Sorau, 1.

Wiebecke, 1888, p. 36: Apparently mentions no cases in his official report for 1884.

Gerdauen, Kr. Gerdauen, R.-B. Königsberg .... 1 case, 0 death.

Nath, 1887, pp. 50, 51: Five others ate of same meat, but not taken sick; further details lacking.

Gleichwitz (Kr.), R.-B. Oppeln .... 3? cases, 0 death.

Noack, 1887, p. 102: Details not given. Outbreaks in 1884 and 1885.

Gnesen (Kr.), R.-B. Bromberg .... 3 cases, 0 death.

Strahler, 1887, p. 56: A peasant family. Meat had not been inspected.

Graudenz (Kr.), R.-B. Marienwerder .... 7 cases, 3 deaths.

Eulenberg, 1885, p. 310: Source of meat not known.

Gross- und Kleinwieden, Kr. Rinteln, R.-B. Cassel. 6 cases, 0 death.

Rockwitz, 1888, p. 235: *Hog was evidently inspected and passed as free from trichinæ*, as the microscopist was imprisoned six months because he took only two samples.

Gumbinnen (R.-B.) .... [13 cases, 0 death].

See Insterburg, 1; and Sensburg, 12.

Guttstadt, Kr. Heilsberg, R.-B. Königsberg .... 2 cases, 0 death.

Nath, 1887, pp. 50, 51: *The hog was inspected and passed as free from trichinæ.* In further microscopic examination 20 preparations were made and only two trichinæ were found.

Halberstadt, R.-B. Magdeburg .... 3? cases, 0 death.

Voigt, 1887, p. 94: Exact number of cases not given: "In einer Familie." *The meat was evidently inspected and passed as free from trichinæ*, as the inspector was fined: "der untersuchende Fleischbeschauer zu einer empfindlichen Geldbuse verurtheilt wurde."

Havelberg, R.-B. Potsdam, November .... 20 cases, 0 death.

Kanzow, 1887, p. 61: Kanzow says that the butcher's books were not found in good order. Lightly smoked "Schlachtwurst." Nothing stated to show whether the hog was inspected or not, but the inspectors in the city were reexamined and all passed the examination.

Insterburg (Kr.), R.-B. Gumbinnen .... 1 case, 0 death.

Passauer, 1887, p. 142: Exact date (1883, 1884, or 1885) not given. No data known.

Kobylepole, Landkr. Posen, R.-B. Posen .... 10 cases, 0 death.

Gemmel, 1887, pp. 14, 18: The hog should have been inspected, but it was not. The owner was imprisoned three days. Gemmel says that this is the only outbreak officially known.

Königsberg (R.-B.) .... [50 cases, 9 deaths].

See Barraginn, 5 (1); Bartenstein, 6; Burdungen, 16 (2); Gerdauen, 1; Guttstadt, 2; Königsberg, 18 (6); and Ortelsburg, 2.

Königsberg, R.-B. Königsberg, spring .... 18 cases, 6 deaths.

Nath, 1887, pp. 50, 51: In the suburb Nassen Garten, at Easter. Hog killed in February. Patients died between April 19 and May 23.

Leimbach, Mansfelder Gebirgskr., R.-B. Merseburg ....
3 cases, 0 death.

Wolff, 1887, p. 89: Disease contracted in Andreasberg, R.-B. Hildesheim.—Eulenberg, 1885, p. 309.

Luckenwalde, R.-B. Potsdam, May .... 5 cases, 0 death.

Kanzow, 1887, p. 61: *The hog was inspected and passed as free from trichinæ.* Dr. Günther afterwards examined some of the meat, but found no parasites until the twenty-fourth preparation.

Magdeburg (R.-B.) .... 10 cases, 0 death.

See Halberstadt, 3; and Wolmirsleben, 7.

Merseburg (R.-B.) .... [91 cases, 12 deaths].

See Belleben, 2; Belleben and Alsleben, 4; Leimbach, 3; and Strenz-Naundorf, 82 (12).

Mittenwalde, R.-B. Potsdam, November .... 12 cases, 0 death.

Kanzow, 1887, pp. 61, 62: It is not stated whether or not the hog was inspected. All meat from one shop.

Niederzehren, Kr. Marienwerder, R.-B. Marienwerder ..... 10 cases, 1 death.

Eulenberg, 1885, p. 310: Hog not inspected.

Nikolaivorstadt bei Breslau, R.-B. Breslau .... 3 cases, 0 death.

Wolff, E., 1887, p. 56: "Imported [from where?] meat" gave rise to a small epidemic. As American meat was excluded, this outbreak was evidently due to meat "imported" from some other source.

Oppeln (R.-B.) .... [3 cases, 0 death].

See Gleichwitz.

Ortelsburg, Kr. Ortelsburg, R.-B. Königsberg .... 2 cases, 0 death.

Nath, 1887, pp. 50, 51: Two children were visiting at Burdungen and brought home some of the infected sausage. The mother and sister ate of it and were taken sick with trichinosis.

Posen (R.-B.) .... [10 cases, 0 death].

See Kobylepole.

Potsdam (R.-B.) .... [59 cases, 1 death].

See Ahrensfelde, 6; Havelberg, 20; Luckenwalde, 5; Mittenwalde, 12; Potsdam, 1; Steglitz, 10 (1); Werneuchen, 5.

Potsdam, R.-B. Potsdam, January .... 1 case, 0 death.

Pistor, 1887, p. 241: K. bei Potsdam.—Eulenberg, 1885, p. 310: December 25, 1883.

Schmalkalden, R.-B. Cassel .... 40 cases, 0 death.

Rockwitz, 1888, p. 235: Meat had passed through the municipal slaughter house, which provides inspectors. Rockwitz remarks that the guilty inspector could not be found, which is equivalent in this instance to admitting that *the hog was inspected and passed as free from trichinæ*.

Sensburg (Kr.), R.-B. Gumbinnen .... 12 cases, 0 death.

Passauer, 1887, p. 142: Details not given.

Sorau (Kr.), R.-B. Frankfurt a. O .... 1 case, 0 death.

Eulenberg, 1885, p. 309: Hog not inspected; in Berge.

Steglitz, R.-B. Potsdam .... more than 10 cases, 1 death.

Kanzow, 1887, p. 61: Early in the year. Probably caused by partially cooked sausage.

Strenz-Naundorf, Mansfelder Gebirgskr., R.-B. Merseburg, May .... 82 cases, 12 deaths.

Eulenberg, 1885, p. 309: *A hog was inspected and passed as free from trichinæ.* Strenz-Naundorf 82 cases, 12 fatal; Belleben and Alsleben 4 cases q. v.—Wolff, 1887, p. 89: Inspector imprisoned a year and a half.—Veröff., 1888, p. 229: 83 cases, 12 deaths. These and 4 in neighboring villages due to hog slaughtered May 2, 1884; inspected and passed as free from trichinæ.

Werneuchen, Kr. Niederbarnin, R.-B. Potsdam... 5 cases, 0 death.

Kanzow, 1887, p. 62: Hog slaughtered for home use and not inspected. A later examination showed it to be trichinous.

Wirzitz (Kr.), R.-B. Bromberg .... 8 cases, 0 death.

Strahler, 1887, p. 56: *The hog was inspected and passed as free from trichinæ.*

Wolmirsleben, Kr. Wanzleben, R.-B. Magdeburg.. 7 cases, 0 death.

Voigt, 1887, p. 94.

1885: 365 cases, 17 deaths.

Summary for the year.—In a total of 365 cases, 17 deaths, at least 42 cases, 4 deaths, *were due to meat which had been inspected and passed as free from trichinæ;* at least 28 other cases may have been due to meat which was passed as free from trichinæ; 5 cases (Stettin) were probably due to condemned meat; 90 cases (Wongrowitz) may have been due to dishonesty on the part of the butchers.

No official or other sanitary reports are accessible to me for the Regierungs-Bezirk Hildesheim.

No cases of trichinosis for 1885 have been found in the official sanitary reports or in other sources for the following Regierungs-Bezirke: Aachen (Trost, 1887, pp. 49, 56), Aurich (Rapmund, 1887, p. 142), Cassel (Rockwitz, 1888, p. 235), Coblenz (Massenbach, 1887, p. 61), Cologne (Schwartz, 1887), Danzig (Zeuschner, 1887), Erfurt (Richter, 1888, p. 114), Gumbinnen (Passauer, 1887, p. 142), Hannover (Becker, 1887), Liegnitz (Philipp, 1886), Lüneburg (Alten, 1887, p. 64), Minden (Schultz-Hencke, 1887, p. 73), Münster (Hölker, 1887, p. 51), Osnabrück (Bitter, 1888), Posen (Gemmel, 1887, pp. 14, 18), Potsdam (Kanzow, 1887, p. 76), Schleswig-Holstein (Bockendahl, 1887, p. 153), Sigmaringen (Koch, 1887), Stade (Bohde, 1887, p. 126), Stralsund (Koehler, 1887, p. 85), Trier (Schwartz, 1887), Wiesbaden (Wagner [1886?]).

Albrechtsdorf, Kr. Pr. Eylau, R.-B. Königsberg, February...
4 cases, 0 death.

Nath, 1887, pp. 51, 52: Smoked sausage. No further details.

Arnsberg (R.-B.) .... [5 cases, 0 death].

See Dortmund, 5.

Baudach, Kr. Crossen, R.-B. Frankfurt............ 8 cases, 8 deaths.

Wiebecke, 1888, p. 36: Two families. Meat had not been inspected.

Bergel, Kr. Ohlau, R.-B. Breslau.................. 3 cases, 0 death.

Wolff, E., 1887, pp. 56, 57: As the remains of the meat could not be found it could not be proven against the inspector that he had passed the hog as free from trichinæ. The diagnosis evidently rested upon symptoms. "Several" cases. Ate the meat three months after the animal was slaughtered.

Berlin .... [15 cases, 1 death].

Berlin, February............................. 12 cases, 1 death.

Lesserhafft, 1885, p. 108.—Eulenberg, 1886, p. 387: About 10 cases, 1 death.—

Berlin, February 1-7 .... [1 case, 0 death].

Veröff., 1885, IX (7), p. 27: In hospital; patient between 31 and 60 years old. Possibly this case is included in the foregoing reference.

Berlin .... [1 case, 0 death].

Veröff., 1885, IX, II (2), p. 13: No details.

Berlin .... 3 cases, 0 death.

Veröff., 1886, p. 135: Four cases, 0 death, in Berlin hospital from January 4, 1885, to January 2, 1886. One patient, between 16 and 30 years old; 3 between 31 and 60 years old. One of these probably refers to the February outbreak. See above.

Breslau (R.-B) .... [23 cases, 4 deaths].

See Bergel, 3; Gaisbach, 4 (1); Gloschkau, 10; Schäbitz, 6 (3).

Bromberg (R.-B) .... [90 cases, 0 death].

See Wongrowitz.

Coeslin (R.-B) .... [3 cases, 0 death].

See Colberg, 3.

Colberg, R.-B. Coeslin, September .... 3 cases, 0 death.

Wernich, 1887, p. 163: Ate sausage before meat was inspected.

Dietrichsdorf, Kr. Gerdauen, R.-B. Königsberg, February .. 6 cases, 0 death.

Nath, 1887, pp. 51, 52: Meat (sausage) had not been inspected.

Delitzsch, Mansfelder. See Kreis and Eisleben, R.-B. Merseburg .. [15 cases, 0 death].

Eulenberg, 1886, p. 387.—See other outbreaks—Klepzig, etc.

Deutsch-Nettkow, Kr. Crossen, R.-B. Frankfurt. 10 cases, 0 death.

Wiebecke, 1888, p. 36: Source of meat not learned.

Dortmund, R.-B. Arnsberg, February .... 5 cases, 0 death.

Katerbau, 1888, p. 121: *The hog was inspected and passed as free from trichinæ.* Afterwards trichinæ were found in the twentieth preparation. Three cases so light as to be uncertain. Hog slaughtered in December.

Drossen (Kr.), R.-B. Frankfurt .... 3 cases, 0 death.

Eulenberg, 1886, p. 387: *The hog was probably inspected and passed as free from trichinæ.* "Wahrscheinlich durch mangelhafte Untersuchung."—Zeitschr. f. Fleischbeschau u. Fleischprod., 1887, II (8), p. 99.

Düsseldorf (R.-B.) .... [3 cases, 0 death].

See Elberfeld.

Elberfeld, R.-B. Düsseldorf .... 3 cases, 0 death.

Weiss, 1888, p. 95: Light cases.—Weiss, 1890, p. 152: No details.

Eisleben, R.-B. Merseburg, October .... 20 cases, 0 death.

Wolff, 1887, p. 90: Meat was not definitely traced, but it was suspected that it came from a certain butcher in the Wiesenmarkt.—Veröff., 1888, p. 229.

Frankfurt a. O. (R.-B.) .... [82 cases, 11 deaths].

See Baudach, 8 (8); Deutsch-Nettkow, 10; Drossen (Kr.), 3; Königsberg (Kr.), 1 (1); Ost-Sternberg (Kr.), 15; Sorau 40, 3; and Vorbruch, 2 (2).

Gaisbach, Kr. Guhrau, R.-B. Breslau .... 4 cases, 1 death.

Wolff, E., 1887, p. 57: Hog was not inspected.

Gerdauen, Kr. Gerdauen, R.-B. Königsberg, October .... 5 cases, 0 death.

Nath, 1887, pp. 51, 52: The meat seller was fined 15 marks for not having the meat inspected.

Gleichwitz (Kr.), R.-B. Oppeln .... 3? cases, 0 death.

Noack, 1887, p. 102: Details not given. Two outbreaks (1884–1885). Number of cases not mentioned.

Gloschkau, R.-B. Breslau, December .... 10 cases, 0 death.

Wolff, E., 1887, p. 56: *The hog was inspected and passed as free from trichinæ.* An "entire family" and several other persons ate of the meat and were taken sick (exact number not stated). Hog had been cut up before inspector took samples. Later examination showed that the meat was heavily infected. The inspector was imprisoned one year.

Graudenz, R.-B. Marienwerder .... 12 cases, 0 death.

Veröff., 1886, p. 135: Between December 27, 1884, and December 26, 1885. Details not given.

Heiligenthal, Mansfelder. See Kr., R.-B. Merseburg, February .... 3 cases, 0 death.

Wolff, 1887, pp. 89, 90: *The hogs were inspected and passed as free from trichinæ.* On account of these cases the meat was again examined by another inspector and by the Kreisphysikus, but no parasites were found; finally the Kreiswundarzt found one trichina.

Hettstedt, R.-B. Merseburg, October .... 3 cases, 0 death.

Wolff, 1887, p. 90: Source apparently determined. "Several" cases in persons who had visited the Wiesenmarkt.—Eulenberg, 1886, p. 387.

Klepzig, Kr. Delitsch, R.-B. Merseburg, January .. 3 cases, 0 death.

Wolff, 1887, p. 89: *The hog was inspected and passed as free from trichinæ.* In later examination of the rest of the pork no trichinæ could be found.

Königsberg (R.-B.) .... [37 cases, 1 death].

See Albrechtsdorf, 4; Dietrichsdorf, 6; Gerdauen, 5; Labiau, 2; Rettauen, 7 (1); Rosenberg, 1; Sand, 3; and Schönfliess, 9.

Königsberg (Kr.), R.-B. Frankfurt a. O .... 1 case, 1 death.

Eulenberg, 1886, p. 387.—Zeitschr. f. Fleischbeschau u. Fleischprod., 1887, II (8), p. 99.

Konitz, R.-B. Marienwerder .... 2 cases, 0 death.

Veröff., 1886, p. 135: Details not given. Between December 27, 1884, and December 26, 1885.

Labiau (Kr.), R.-B. Königsberg .... 2 cases, 0 death.

Nath, 1887, p. 52: Two persons who were visiting in the neighboring Kreis and contracted the disease.

Magdeburg (R.-B.) .... [25 cases, 0 death].

See Wanzleben.

Marienwerder (R.-B.) .... [32 cases, 0 death].

Reiche, 1887, pp. 34, 35: I fail to find any cases recorded in this report. See, however, Graudenz, 12; Konitz, 2; Marienwerder, 10; Strassburg, 1; Stuhm, 5; and Thorn, 2.—Veröff., 1886, p. 135: 32 cases between December 27, 1884, and December 26, 1885.

Marienwerder (Kr.), R.-B. Marienwerder .... 10 cases, 0 death.

Veröff., 1886, p. 135: Details not given. Between December 27, 1884, and December 26, 1885.

Merseburg (R.-B.) .... [29 cases, 0 death].

Veröff., 1888, p. 229.—Review of Wolff.—See Delitzsch, [15]; Eisleben, 20; Heiligenthall, 3; Hettstedt, 3; and Klepzig, 3.

Oppeln (R.-B.) .... [16 cases, 0 death].

See Gleichwitz, 3; and Zabrze, 13.

Ost-Sternberg (Kr.), R.-B. Frankfurt .... 15 cases, 0 death.

Eulenberg, 1886, p. 387.—Zeitschr. f. Fleischbeschau u. Fleischprod., 1887, II (8), p. 99.

Rettauen, Kr. Friedland, R.-B. Königsberg, February ....
7 cases, 1 death.

Nath, 1887, pp. 51, 52.

Rosenberg, Kr. Gerdauen, R.-B. Königsberg, Fall .. 1 case, 0 death.

Nath, 1887, pp. 51, 52.

Sand, Kr. Pr. Eylau, R.-B. Königsberg, February . 3 cases, 0 death.

Nath, 1887, pp. 51, 52: Smoked sausage.

Schäbitz, R.-B. Breslau, November-December .... 6 cases, 3 deaths.

Wolff, E., 1887, p. 56: *The hog was inspected and passed as free from trichinæ.* Family taken sick; 3 members died; the rest recovered. Subsequent examination of the meat showed that it was heavily infested. Inspector imprisoned two years.

Schönfliess, Kr. Allerstein, R.-B. Königsberg, May . 9 cases, 0 death.

Nath, 1887, pp. 51, 52: Including two visitors from Gut Ramssau.

Sorau (Kr.), R.-B. Frankfurt .... 40 cases, 0 death.

Eulenberg, 1886, p. 387: Stadt Forst. Meat not inspected.—Zeitschr. f. Fleischbeschau u. Fleischprod., 1887, II (8), p. 99.

Sorau (Kr.), R.-B. Frankfurt. Second outbreak ... 3 cases, 0 death.

Eulenberg, 1886, p. 387: "Several" cases.

Stettin (R.-B.) .... [5 cases, 0 death.]

See Stettin (Stadt).

Stettin, R.-B. Stettin .... 5 cases, 0 death.

Eulenberg, 1886, p. 387.—Dieterich, 1887, p. 137: *Infection probably came from meat which had been inspected, found to be trichinous, and condemned.* A portion was then used by the butcher.

Strassburg, R.-B. Marienwerder .... 1 case, 0 death.

Veröff., 1886, p. 135: Details not given. December 27, 1884-December 26, 1885.

Stuhm, R.-B. Marienwerder .... 5 cases, 0 death.

Veröff., 1886, p. 135: Details not given. December 27, 1884-December 26, 1885.

Thorn, R.-B. Marienwerder .... 2 cases, 0 death.

Veröff., 1886, p. 135: Details not given. December 27, 1884-December 26, 1885.

Vorbruch, Kr. Friedeberg, R.-B. Frankfurt ...... 2 cases, 2 deaths.

Wiebecke, 1888, p. 36: It is not stated whether or not the meat was inspected. Hog home slaughtered.

Wanzleben (Stadt and Domaine), R.-B. Magdeburg, May ....
25 cases, 0 death.

Voigt, 1887, p. 94: Identity of meat with records in inspector's book could not be established, as meat was all gone.

Wongrowitz, R.-B. Bromberg .... 90 cases, 0 death.

Strahler, 1887, p. 56: Two butchers concerned. It was proved that they had smuggled a number of hogs away from the inspection, but it is not stated that this particular outbreak was definitely traced, except to meat bought of these two men.

Zabrze (Kr.), R.-B. Oppeln .... 13 cases, 0 death.

Noack, 1887, p. 102: From eating so-called "Polish sausage." Details not given.

1886: 136 cases, 10 deaths.

Summary for the year.—In a total of 136 cases, 10 deaths, 37 cases, 3 deaths, are stated to be *due to pork which was inspected and passed as free from trichinæ;* at least 5 other cases may have been due to inspected meat, but they were not definitely proven; 5 cases were due to eating pork before the result of the examination was known.

No cases of trichinosis in man for 1886 have been found in the official health reports or in other sources for the following Regierungs-Bezirke: Aachen (Trost, 1891, p. 106), Arnsberg (Tenholt, 1891, p. 86), Aurich (Rapmund, 1890, p. 88), Berlin (Pistor, 1890), Coblenz (Massenbach, 1890, p. 68), Cologne (Schwartz, 1889, p. 32), Coeslin (Wernich, 1890, p. 99), Erfurt (Pippow, 1892, p. 114), Frankfurt a. O. (Frankfurt, 1890, p. 39), Gumbinnen (Passauer, 1890, p. 106), Hannover (Becker, 1891, p. 94), Hildesheim (Grun, 1890, p. 45), Liegnitz (Philipp, 1890, p. 97), Lüneburg (Alten, 1890), Magdeburg (Voigt, 1891, p. 30), Minden (Rapmund, 1892, p. 106), Münster (Kölker, 1890, p. 80), Oppeln (Schmidtmann, 1893, p. 56), Osnabrück (Bitter, 1891), Sigmaringen (Lauchert, 1890, p. 52), Stade (Bohde, 1890), Stettin (Katerbau), Stralsund (Haselberg, 1890, p. 68), Trier (Schwartz, 1890), Wiesbaden (Wagner [18—], p. 76).

Baranow, Kr. Kempen, R.-B. Posen .... 4 cases, 0 death.

Dieterich, 1891, p. 139: The meat came from Pitschen, Schlesien.

Breslau (R.-B.) .... [20 cases, 1 death].

See Breslau, 3, 10; Saarau, 7 (1).

Breslau (Stadt), R.-B. Breslau, March .... 3 cases, 0 death.

Wolff, E., 1890, pp. 38, 39: Ham came from Pfaffendorf near Reichenbach.

Breslau (Stadt), R.-B. Breslau .... 10 cases, 0 death.

Veröff., 1887, p. 603: See Norddeutsche Allg. Zeitung, No. 453, September 29, 1886.

Bromberg (R.-B.) .... [1 case, 0 death].

See Wongrowitz.

Cassel (R.-B.) .... [12 cases, 2 deaths].

See Lichtenau, 4; and Rodenberg, 8 (2).

Cavern, Kr. Pr. Eylau, R.-B. Königsberg .... 6 cases, 0 death.

Nath, 1891, p. 54: Sausage insufficiently cooked. Meat had not been inspected.

Danzig (R.-B.) .... [2 cases, 2 deaths].

See Marienwerder.

Dietrichsdorf, Kr. Gerdauen, R.-B. Königsberg .... 7 cases, 0 death.

Nath, 1891, p. 54: *The hog was inspected and passed as free from trichinæ.*

Düsseldorf (R.-B.) .... [5 cases, 0 death].

See Heiligenhaus.

Gradken (Gut), Kr. Allenstein, R.-B. Königsberg, February.. 14 cases, 3 deaths.

Nath, 1891, pp. 53, 54: "Erst nachträglich wurden die Trichinen in den Resten der Fleischwaaren entdeckt," but Nath does not definitely state whether or not the hog had been inspected.

Halle a. S., R.-B. Merseburg, August............ 10 cases, 0 death.

Zeitschr. f. Fleischbeschau u. Fleischprod., 1886, II (1), Oct., p. 8: 10 severe cases, and many light cases.—Wolff, 1890, p. 85: The butcher always had his meat inspected by a competent inspector: "von einem fahrlässigen Verfahren bei der Untersuchung konnte nach dem milden Verlaufe der Erkrankungen auch in diesem Falle nicht die Rede sein," from which, in connection with the rest of the description, it may be concluded that *the hog was inspected and passed as free from trichinæ.*—Veröff., 1891, p. 245: Case not explained.—Ostertag, 1895, p. 416, and 1899, p. 505: Gives date as 1885. "Verschuldung unaufgeklärt."

Heiligenhaus, Kr. Mettmanm, R.-B. Düsseldorf, February.... 5? cases, 0 death.

Weiss, 1890, pp. 70, 152: Hog had probably not been inspected. In one place this is given as 3 cases; in another, 5 cases.

Hettstedt, R.-B. Merseburg...................... 5 cases, 0 death.

Wolff, 1890, p. 85: *The hog was inspected by a very competent inspector and passed as free from trichinæ.* In the later examination of 150 preparations by the Kreisphysikus, 2 veterinarians, and 9 trichina inspectors, an average of 1 trichina was found in each preparation. "Several" persons were taken sick.

Kathrinenhof, Kr. Pr. Eylau, R.-B. Königsberg... 2 cases, 0 death.

Nath, 1891, p. 54: "Auch hier fand erst nachträglich die mikroskopische Feststellung statt," but we are not told definitely whether the hog was first inspected and passed as free from trichinæ.

Königsberg (R.-B.) .... [32 cases, 3 deaths].

See Cavern, 6; Dietrichsdorf, 7; Gradken, 14 (3); Kathrinenhof, 2; and Peissnick, 3.

Lichtenau, Kr. Witzenhausen, R.-B. Cassel........ 4 cases, 0 death.

Rockwitz, 1891, p. 62: *The hog was inspected and passed as free from trichinæ.* "Die Infection war auf den Genuss des Fleisches von Schweinen zurückzuführen, die untersucht und für trichinenfrei erklärt worden waren."

Löbau, R.-B. Marienwerder, July .... 3 cases, 0 death.

Michelsen, 1890, p. 76: Infection was supposed to be from Wiener Würstchen eaten raw in Dt. Eylau. No cases were recorded in Eylau, and the microscopic inspection of the wares in the butcher's shop from which the sausage came was negative.

Marienwerder (Kr.), R.-B. Danzig .... 2? cases, 2 deaths.

Zeuschner, 1891, p. 48: From sausage. Cooked meat from same hog produced no ill effects.

Marienwerder (R.-B.) .... [20 cases, 1 death].

See Löbau, 3; Marienwerder, 4, 4, 6; and Neumark, 3 (1).

Marienwerder (R.-B.) .... 4 cases, 0 death.

Veröff., 1886, Feb. 9, p. 78: Details not given.

Marienwerder (R.-B.) .... 4 cases, 0 death.

Veröff., 1886, March 16, p. 145: Details not given.

Marienwerder (R.-B.) .... 6 cases, 0 death.

Veröff., 1886, June 1, p. 323: Details not given.

Merseburg (R.-B.) .... [15 cases, 0 death].

See Halle, 10; and Hettstedt, 5.—Wolff, 1890, p. 85: 15 cases.

Neumark, R.-B. Marienwerder, March .... 3 cases, 1 death.

Michelsen, 1890, p. 76: *The hog was inspected and passed as free from trichinæ.* "Dem Fleischbeschauer, welchem eine schwere Vernachlässigung seiner Amtspflicht nachgewiesen wurde, ist die Concession entzogen worden."

Niederlehme, Kr. Beeskow-Storkow, R.-B. Potsdam ....
2 cases, 0 death.

Kanzow, 1890, p. 63: Source of infection not known. Early in year. A house butcher and his wife.

Peissnick, Kr. Gerdauen, R.-B. Königsberg ...... 3 cases, 0 death.

Nath, 1891, p. 54.

Posen (R.-B.) .... [4 cases, 0 death].

See Baranow.

Potsdam (R.-B.) .... [5 cases, 0 death].

See Niederlehme, 2; and Velten, 3.

Ratzeburg, Lauenburg, Schleswig-Holstein, December ......
4 cases, 0 death.

Bockendahl, 1889, p. 105: Meat used before inspector reported.

Rodenberg, Kr. Rinteln, R.-B. Cassel .... 8 cases, 2 deaths.

Rockwitz, 1891, p. 62: *The hog was inspected and passed as free from trichinæ.* "Die Infection war auf den Genuss des Fleisches von Schweinen zurückzuführen, die untersucht und für trichinenfrei erklärt worden waren [p. 100]. Der Kreisphysikus in Rinteln nimmt an, dass der Trichinenbeschauer in Rodenberg, ein sehr befähigter und mit einem guten Mikroskope versehener Sachverständiger, die ihm übersandten Fleischproben gar nicht untersucht habe; allerdings waren die Trichinen in dem Fleische sehr ungleich vertheilt, so dass einzelne Präparate gar keine andere dagegen sehr zahlreiche Trichinen enthielten."

Saarau, Kr. Schweidnitz, R.-B. Breslau .... 7 cases, 1 death.

Wolff, E., 1890, p. 39: Hog had not been inspected.

Schleswig-Holstein (R.-B.) .... [20 cases, 1 death].

See Ratzeburg, 4; Wansbeck, 16 (1).

Velten, R.-B. Potsdam .... 3 cases, 0 death.

Kanzow, 1890, p. 63: Hog was slaughtered for home use. It is not stated whether or not it was inspected, but later examination showed it to contain trichinæ.

Wansbeck, R.-B. Schleswig-Holstein, March .... 16 cases, 1 death.

Bockendahl, 1889, p. 105: 12 cases, 1 death, in Hamburg hospital; hog slaughtered February 12, from Hamburg market, and was not inspected. Butcher fined costs and given one month's imprisonment.—Veröff., 1891, p. 245; March 7-13: 12 cases in Wansbeck; afterwards 2 cases in "Hamburg-Gebiet," and 2 light cases in Wansbeck.—Ostertag, 1895, p. 416: Gives the date as 1885, March 7-13.

Wongrowitz (Kr.), R.-B. Bromberg .... 1 case, 0 death.

Peters, 1890, p. 59: Butcher boy ate raw pork before the hog was inspected. Peters adds that the boy did not consult medical aid immediately, by which the outbreak in this case might have been prevented.

1887: 294 cases, 15 deaths.

Summary for the year.—A total of 294 cases, 15 deaths. Of these, 142 cases, 4 deaths, are recorded as *due to pork which was inspected and passed as free from trichinæ.* Besides these, 87 cases, 1 death, *were probably due to meat which was inspected and passed as free from trichinæ.* Forty-two of these 87 cases were due either to inspected pork or to meat which the butcher smuggled through the inspection. There are no good grounds for believing that the other 45 cases were not due to inspected pork. The Wildemann outbreak of 103 cases is especially interesting. The inspector was acquitted on the ground that even with very careful inspection the parasites may be overlooked.

No cases of trichinosis in man have been found in the official or other health reports for 1887 for the following Regierungs-Bezirke: Aachen (Trost, 1891, p. 106), Arnsberg (Tenholt, 1891, p. 86), Aurich (Rapmund, 1890, p. 88), Cassel (Rockwitz, 1891, p. 62), Coblenz (Massenbach, 1890, p. 68), Cologne (Schwartz, 1889, p. 32), Düsseldorf (Weiss, 1890, pp. 56, 152), Frankfurt (Frankfurt, 1890, p. 39), Gumbinnen (Passauer, 1890, p. 106), Hannover (Becker, 1891, p. 94), Liegnitz (Philipp, 1890, p. 97), Lüneburg (Alten, 1890), Magdeburg (Voigt, 1891, p. 30), Merseburg (Wolff, 1890, p. 85), Minden (Rapmund, 1892, p. 106), Münster (Kölker, 1890, p. 80), Osnabrück (Bitter, 1891), Schleswig-Holstein (Bockendahl, 1889, p. 105), Sigmaringen (Lauchert, 1890, p. 52), Stade (Bohde, 1890), Stettin (Katerbau, 1890, p. 109), Trier (Schwartz, 1890), Wiesbaden (Wagner [18—], p. 76).

Barth, Kr. Franzenburg, R.-B. Stralsund............ 1 case, 0 death.

Haselberg, 1890, p. 68: No details given, except that the case was not investigated. It is not stated in which year (1886, 1887, or 1888) it occurred, but it is stated that probably isolated cases occur now and then.

Berlin.. [7 cases, 1 death].

See next two entries; also Neu-Kulm-See.

Berlin.. 2 cases, 0 death.

Veröff., 1889, p. 157: In hospitals; 2 cases; patients between 16 and 30 years old.

Berlin, December.............................. 5 cases, 1 death.

Veröff., 1891, p. 245: The meat was not inspected.—Ostertag, 1895, p. 417: Patient died in 1888.—Pistor, 1890, p. 169: 5 cases, 1 death. Meat not inspected, came from Neu-Kulm-See, Kr. Thorn.—Michelsen, 1890, p. 77: 2 deaths.—Ostertag, 1899, p. 497: 5 cases, 1 death.

Bieberswalde, Kr. Wehlau, R.-B. Königsberg.... 10 cases, 0 death.

Nath, 1891, p. 54: Insufficiently cooked sausage. The hog had not been inspected.—Veröff., 1891, p. 245, and Ostertag, 1895, p. 417: Refer to an outbreak of 10 cases. Probably this is the Bieberswalde epidemic. Ostertag gives the date as February.

Bortschenshine bei Trachenberg, R.-B. Breslau, April..... 14 cases, 1 death.

Wolff, E., 1890, p. 39: *The hog was inspected and passed as free from trichinæ:* "welche durch Fahrlässigkeit eines Fleischbeschauers verschuldet war." Several cases in Breslau also from same source.

Breslau (R.-B.)................................ [19 cases, 1 death].

See Bortschenshine, 14 (1); Breslau. 3: and Trebnitz, 2.

Breslau, R.-B. Breslau, April .... 3 cases, 0 deaths.

Wolff, E., 1890, p. 39: Several cases. Same source of infection as the outbreak in Bortschenshine. *The hog was inspected and passed as free from trichinæ.*

Breslau and Jauer, Prussia .... [? cases, ? deaths].

Zeitschr. f. Fleischbeschau u. Fleischprod., 1888, III (5), p. 50: In speaking of the Braunschweig-Holzminden outbreak, "und auch in Breslau und Jauer Erkrankungen an Trichinose vorgekommen, welche auf den Genuss von Fleischwaaren bezogen wurden."

Bromberg (R.-B.) .... [45 cases, 1 death].

See Inowrazlaw.

Coeslin (R.-B.) .... [42 cases, 0 death].

See Dramburg, 21; and Falkenburg, 21.

Danzig (R.-B.) .... [10 cases, 0 death].

See Schönwarling.

Dramburg, R.-B. Coeslin .... 21 cases, 0 death.

Wernich, 1890, p. 99: It could not be proved whether the hog had been inspected and passed as free from trichinæ, or whether the butcher had smuggled the meat through the inspection. "Weil mit Bestimmtheit sich nicht feststellen liess ober das Schwein der Fleischbeschau entzogen[1] oder ob der Fleischbeschauer die Fleischschau oberflächlich ausgeführt hatte." A few weeks later trichina inspector St. passed a hog as free from trichinæ which another inspector found to be trichinous.

Erfurt (R.-B.) .... [12 cases, 0 death].

See Mühlhausen.

Falkenburg, R.-B. Coeslin .... 21 cases, 0 death.

Wernich, 1890, p. 99: About same number as in Dramburg; apparently from the same origin. It could not be proven whether the hog had been inspected or whether it had been smuggled[1] through the inspection.

Gerdauen (Kr.), R.-B. Königsberg, March .... 2 cases, 0 death.

Veröff., 1891, p. 245: Meat had not been inspected.

Gilgenau, Kr. Ortelsburg, R.-B. Königsberg ...... 4 cases, 1 death.

Nath, 1891, p. 54: The hog was not examined until part of it was eaten. It was afterwards found to be heavily infested.—Veröff., 1891, p. 245, and Ostertag, 1895, p. 416, and 1899, p. 505, cite 4 cases, 1 fatal, in Ortelsburg for May. Probably the reference belongs here.

Grund.

See Wildemann.

Hildesheim (R.-B.) .... [103 cases, 3 deaths].

See Wildemann.

Inowrazlaw, R.-B. Bromberg, September–October. 45 cases, 1 death.

Veröff., 1887, p. 665: About 50 cases, 1 death. See Allg. Med.-Centr. Zeitung.—Veröff., 1888, p. 343: 45 cases, 1 death. About one-third were Jews, who bought the meat for beef. "It is possible that the pork was brought in from the country and not inspected." (But the town has an obligatory inspection.)—Zeitschr. f. Fleischbeschau u. Fleischprod., 1888, III (5), Feb., p. 50.—Allg. Med. C. Z., 88 St., 2 November, p. 1582: About 50 cases, 1 death.—Peters, 1890, pp. 59, 60: 45 cases, 1 death. "Da sämmtliches Schlachtvieh in Inowrazlaw nur in

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[1] The German words "entziehen," "entzogen," are here translated "smuggled" in view of the circumstances.

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dem öffentlichen Schlachthause geschlachtet werden darf, wo es von geübten Fleischbeschauern auf Trichinen untersucht wird, so ist der Medizinal-Beamte der Ansicht, dass dasjenige Fleisch, welches zur Infection geführt hat, von auswärts importirt und auf Trichinen gar nicht untersucht worden ist." The argument is exceedingly weak. How much better it would be for the health officer frankly to acknowledge that a trichina inspection can not be guaranteed than to adopt this line of defense. However, as he prefers the above attempted explanation, this case will be given the benefit of the doubt and excluded from the outbreaks caused by meat which is inspected and declared to be free from trichinæ.

Jüterborg (Kr.), R.-B. Potsdam.................. 1 case, 0 death.

Kanzow, 1890, p. 63: Hog not inspected. Man ate raw meat. Later examination showed numerous trichinæ.

Kinderhof, Kr. Gerdauen, R.-B. Königsberg, March.......... [2 cases, 0 death].

Nath, 1891, p. 54.—Veröff., 1891, p. 245: Meat had not been inspected.—Ostertag, 1899, p. 505.

Königsberg (R.-B.) .... [36 cases, 2 deaths.]

See Bieberswalde, 10; Gerdauen, 2; Gilgenau, 4 (1); Rollnau, 8; Wolfsdorf, 12 (1).

Kreutzburg (Amtsgericht), Kr. Kreutzburg, Ober-Schlesien, R.-B. Oppeln .... 3 cases, 0 death.

Veröff., 1891, p. 64*: *It is not excluded that the hog was inspected and passed as free from trichinæ:* "Es wurde nicht für ausgeschlossen gehalten, dass das Schwein von welchem der q. Schinken herrührte, untersucht, dass aber der Fleischbeschauer nicht mit der erforderlichen Gewissenhaftigkeit verfahren habe." * * * "Da nicht erwiesen werden konnte, dass der Angeklagte dasjenige Schwein, von welchem der verkaufte Schinken herrührte nicht hatte untersuchen lassen, oder bei dem Verkaufe des etwa auf andere Weise erworbenen Schinkens aus Fahrlässigkeit die trichinöse Beschaffenheit des letzteren nicht gekannt habe, erfolgte die Freisprechung." Urtheil, 25. April 1887, wider Fleischermeister P.

Marienwerder (R.-B.)......................... [6 cases, 2 deaths].

See Neu-Kulm-See.

Minden.

See Wildemann.

Mühlhausen i. Th., R.-B. Erfurt, December...... 12 cases, 0 death.

Veröff., 1888, p. 344: Raw pork. *The hog must have been inspected and passed as free from trichinæ*, since the butcher's book agreed with that of the inspector.—Veröff., 1891, p. 245.—Pippow, 1892, pp. 114, 143, 144: On p. 114 it is stated that the outbreak was in Nordhausen and that definite proof of the diagnosis was wanting, but on pp. 143, 144 it is stated that trichinæ were found in a piece of deltoid muscle taken from one of the patients. From the statement made *it is evident that the hog was inspected and passed as free from trichinæ.* Are two different outbreaks referred to?—Ostertag, 1895, p. 417, and 1899, p. 505: Immediately preceding the citation of this outbreak Ostertag emphasizes the fact that the *other* outbreaks were *not* due to inspected pork, but he omits to state that *this one* was.

Neu-Kulm-See, R.-B. Marienwerder............. 6 cases, 2 deaths.

Michelsen, 1890, pp. 76, 77: Two hogs slaughtered and not inspected; afterwards found to be trichinous. Three persons "and several" others were taken sick. Some of the meat was sent to Berlin, and 2 persons who ate of it died. The owner of the meat was imprisoned three months.

Nordhausen.

See Mühlhausen.

Oppeln (R.-B.) [3 cases, 0 death].

See Kreutzburg.

Posen (R.-B.) [9 cases, 5 deaths].

See Ruda, 6 (3); Zembowo, 3 (2).

Potsdam (R.-B.) [1 case, 0 death].

See Jüterborg.

Rollnau, Kr. Mohrungen, R.-B. Königsberg 8 cases, 0 death.

Nath, 1891, p. 54.—Veröff., 1891, p. 245, and Ostertag, 1895, p. 416, cite 8 cases for Mohrungen in March, 1887, which probably belong here. Meat had not been inspected.

Ruda, Kr. Krotoschin, R.-B. Posen 6 cases, 3 deaths.

Dieterich, 1891, p. 139: The meat came from Kreis Kröben.

Schönwarling, R.-B. Danzig 10 cases, 0 death.

Zeuschner, 1891, p. 49: *The hog had been inspected by "Dr. A.," and had been passed as free from trichinæ.* Later examination showed trichinæ. Exact number of cases not given. "Familie des Hofbesitzers G., nebst dem Hausgesinde und einigen im Hause verkehrenden Handwerkern und Arbeitern."

Stralsund (R.-B.) [1 case, 0 death].

See Barth.

Trebnitz (Kr.), R.-B. Breslau, August 2 cases, 0 death.

Wolff, E., 1890, p. 39: The meat was eaten raw before the hog was inspected. Inspector found trichinæ.

Wildemann and vicinity, Kr. Zellerfeld, R.-B. Hildesheim, October–November 103 cases, 3 deaths.

Veröff., 1887, p. 665: 86 cases.—Zeitschr, f. Fleischbeschau u. Fleischprod., 1887, III (3), Dec., p. 34: "Nach den letzten Meldungen ist die Krankheit durch Versendung von Würsten nach Grund und Zellerfeld verschleppt worden. Eltern, die ihren beim Militär stehenden Söhnen Würste geschickt hatten, haben dadurch das Auftreten der Trichinosis in Minden und Vegesack veranlasst." Idem, 1888, III (8), p. 51.—Veröff., 1888, p. 344: 103 cases, 3 deaths, distributed as follows: Wildemann, 93; Grund, 4; Lautenthal, 3; Zellerfeld, 3. *The hog was inspected and passed as free from trichinæ.*—Grun, 1890, p. 45: *The hog was inspected and passed as free from trichinæ.* The inspector was acquitted on the ground that even with very careful inspection the trichinæ may escape detection. "Da die zugezogenen Sachverständigen erklärten, dass selbst bei sorgfältiger Untersuchung die Durchsetzung eines Schweines mit Trichinen möglich sei, ohne zur Beobachtung zu gelangen."—Veröff., 1891, p. 296.—[Nord. Allg. Zeit., No. 513, vom 3. November.]

Wolfsdorf, Kr. Heilsberg, R.-B. Königsberg 12 cases, 1 death.

Nath, 1891, p. 54: The hog had not been inspected.—Veröff., 1891, p. 245, and Ostertag, 1895, p. 416, cite 12 cases, 1 death, for Heilsberg in January and February, 1887, which are probably the same.

Zembowo, Kr. Buk, R.-B. Posen 3 cases, 2 deaths.

Dieterich, 1891, p. 139.

1888: 134 cases, 14 deaths.

Summary for the year.—In a total of 134 cases, 14 deaths, at least 20 cases appear to have been *due to meat which was inspected and* *passed as free from trichinæ;* 2 cases, 1 death, were due to meat from a condemned hog; 4 cases were due to sausage made before meat was inspected.

No cases of trichinosis in man were found in the official or other sanitary reports for the following Regierungs-Bezirke: Aachen (Trost, 1891), Arnsberg (Tenholt, 1891, p. 86), Aurich (Rapmund, 1890, p. 88), Coblenz (Massenbach, 1890, p. 68), Coeslin (Wernich, 1890, p. 99), Cologne (Schwartz, 1889, p. 32), Danzig (Zeuschner, 1891, p. 50), Düsseldorf (Weiss, 1890, p. 152), Erfurt (Pippow, 1892, p. 114), Frankfurt (Frankfurt, 1890, p. 39), Hannover (Becker, 1891, p. 94), Liegnitz (Philipp, 1890, p. 97), Lüneburg (Alten, 1890), Magdeburg (Voigt, 1891, p. 30), Minden (Rapmund, 1892, p. 106), Münster (Kölker, 1890, p. 80), Oppeln (Schmidtmann, 1893, p. 56), Osnabrück (Bitter, 1891), Posen (Dieterich, 1891, p. 139), Sigmaringen (Lauchert, 1890, p. 52), Stade (Bohde, 1890), Stettin (Katerbau, 1890, p. 109), Stralsund (Haselberg, 1890, p. 68), Trier (Schwartz, 1890), Wiesbaden (Wagner [18—], p. 76).

Berlin .... [5 cases, 3 deaths].

See separate cases.

Berlin .... 1 case, 0 death.

Veröff., 1888, p. 1: Charité.

Berlin .... 1 case, 1 death.

Veröff., 1888, p. 69: 1 death mentioned.

Berlin .... 2 cases, 1 death.

Veröff., 1888, p. 157: In hospital; 1 patient between 16 and 30 years old; 1 between 31 and 60 years old.

Berlin .... 1 case, 1 death.

Veröff., 1888, p. 241: Moabit hospital; 1 death mentioned.

Breslau (R.-B.) .... [4 cases, 0 death].

Wolff, 1890, p. 39: Says no cases were reported for 1888. See, however, Oels.

Bromberg (R.-B.) .... [36 cases, 2 deaths].

See Bromberg, 3; Gnesen, 2 (1); Inowrazlaw, 25; Swiniary, 6 (1).

Bromberg, R.-B. Bromberg, July .... 3 cases, 0 death.

Peters, 1890, p. 60: "Einige Personen;" exact number not given. Source of infection remained undetermined. Diagnosis based on symptoms.

Cassel (R.-B.) .... [3 cases, 0 death].

See Soldorf.

Fischhausen, Memel, and Mohrungen, R.-B. Königsberg.. [11 cases, 2 deaths].

Veröff., 1888, p. 119: See Mohrungen, Rogehen, and Schmelz.

Gnesen (Landgericht), R.-B. Bromberg .... 2 cases, 1 death.

Veröff., 1891, p. 63*: *Hog had been condemned, but a portion appears to have been eaten.*

Gumbinnen (R.-B.) .... [14 cases, 1 death].

See Krupinnen.

Hildesheim (R.-B.) .... [2 cases, 1 death].

See Obergrasmühle.

Inowrazlaw, R.-B. Bromberg, September .... 25? cases, 0 death.

Peters, 1890, p. 60: Exact number of cases not given. Diagnosis based on symptoms. Source of infection not traced.—Archiv f. anim. Nahrungsmittelk., 1888, IV (3), Dec., p. 40: "Aus Inowrazlaw werden wiederum 20–30 Fälle von Trichinosis gemeldet. Die Organisation der Fleischbeschau in Inowrazlaw scheint trotz der traurigen Erfahrungen, welche man daselbst im vergangenen Winter erst gemacht, noch sehr im Argen zu liegen. Man nimmt an, dass das schädliche Schweinefleisch wiederum wie im Vorjahre mit Umgehung der Kontrolle von auswärts eingeführt ist, aber die Polizeibehörde konnte bisher einen Schuldigen noch nicht ermitteln."

Königsberg (R.-B.) .... [26 cases, 4 deaths].

See Kossen, 2 (2); Mohrungen, 15; Rogehen, 6 (2); and Schmelz, 3.

Königsberg (R.-B.) .... [7 cases, 0 death].

Veröff., 1888, p. 135: Vier Ortschaften. This probably belongs with the other outbreaks.

Königs-Wusterhausen, R.-B. Potsdam, October .. 7 cases, 0 death.

Kanzow, 1890, pp. 63, 64: It is not stated whether the meat was inspected. Members of 6 families ate sausage made of raw pork sold at the Jahresmarkt.—Arch. f. anim. Nahrungsmittelk., 1888, IV (3), Dec., p. 40.

Kossen, Kr. Heilsberg, R.-B. Königsberg .... 2 cases, 2 deaths.

Nath, 1891, p. 54: Meat not inspected.

Krupinnen, Kr. Oletzko, R.-B. Gumbinnen, January–February ...... 14 cases, 1 death.

Passauer, 1890, p. 106: Hog was slaughtered in December, 1887, and was not inspected, but trichinæ were afterwards found.

Mansfeld, R.-B. Merseburg, February .... 6 cases, 0 death.

Wolff, 1890, p. 85: *The hog was inspected and passed as free from trichinæ.* On account of the outbreak the meat was reinspected and, during the examination of a large number of preparations, now and then a trichina was found.—Veröff., 1891, p. 245: "Das Fleisch war sehr spärlich mit Trichinen durchsetzt, der Fleischbeschauer konnte einer Fahrlässigkeit nicht beschuldet werden."—Ostertag, 1895, p. 417.

Marienwerder (R.-B.) .... [16 cases, 3 deaths].

Michelsen, 1890, pp. 76, 77: No cases given in official report. See, however, Marienwerder, 2; and Thorn, 14 (3).

———, R.-B. Marienwerder .... 2 cases, 0 death.

Veröff., 1888, p. 283: Details not given.

Merseburg (R.-B.) .... [6 cases, 0 death].

See Mansfeld.

Mohrungen (Kr.), R.-B. Königsberg, February .. 15 cases, 0 death.

Veröff., 1888, p. 149: 1 case.—Nath, 1891, p. 54: 2 uninspected hogs concerned.—Veröff., 1891, p. 245: 15 cases in 6 villages. Hog not inspected.—Ostertag, 1899, p. 505.

Obergrasmühle bei Ilfeld, R.-B. Hildesheim, March. 2 cases, 1 death.

Veröff., 1891, p. 296.—Grun, 1890, p. 46: Meat not inspected.

Oels (Landgericht), R.-B. Breslau .... 4 cases, 0 death.

Veröff., 1891, Beilage, p. 64*: Some sausage made before the meat was inspected was sold. Trichinæ found by two inspectors. Fleischer K., Urtheil, February 8, 1888. Exact date of outbreak not given (1887, 1888).

Potsdam (R.-B.) .... [18 cases, 0 death].

See Königs-Wusterhausen, 7; Templin, 11.

Rogehen, Kr. Fischhausen, R.-B. Königsberg ..... 6 cases, 2 deaths.

Nath, 1891, p. 54.—Veröff., 1888, p. 119: 2 deaths.—Veröff., 1891, p. 245: December 31, 1887–January, 1888: 6 cases, 2 deaths. Meat not inspected.—Ostertag, 1895, p. 417: 6 cases, 2 deaths.

Schleswig-Holstein (R.-B.) .... [4 cases, 0 death].

See Stelling.

Schmelz, Kr. Memel, R.-B. Königsberg .... 3 cases, 0 death.

Nath, 1891, p. 54.—Veröff., 1891, p. 245, January: Meat not inspected.—Ostertag, 1899, p. 505.

Soldorf, Kr. Rinteln, R.-B. Cassel .... 3 cases, 0 death.

Rockwitz, 1891, p. 62: *The hog was inspected and passed as free from trichinæ.* "Die Infection war auf den Genuss des Fleisches von Schweinen zurückzuführen, die untersucht und für trichinenfrei erklärt worden waren."

Stelling, Kr. Pinneberg, R.-B. Schleswig-Holstein .. 4 cases, 0 death.

Bockendahl, 1889, p. 105: Hog had eaten a rat in the spring and had been sick a long time in the summer.—Veröff., 1891, p. 245: 4 cases, December, in Kr. Pinneberg.—Ostertag, 1895, p. 417.

Swiniary bei Gnesen, R.-B. Bromberg .... 6 cases, 1 death.

Peters, 1890, p. 60: The meat had not been inspected.

Templin, R.-B. Potsdam .... 11 cases, 0 death.

Kanzow, 1890, p. 63: *The hog was inspected and passed as free from trichinæ.* The inspector was made to pay the value of the hog.

Thorn, R.-B. Marienwerder .... 14 cases, 3 deaths.

Veröff., 1891, Beilage, p. 63*: The owner of the hog thought inspection unnecessary. "Im Auftrage der Angeklagten hatte ein Fleischer zwei demselben gehörige Schweine geschlachtet und die Untersuchung auf Trichinen gefordert. Die Angeklagten lehnten dies aber als unnötig ab."

1889: 216 cases, 15 deaths.

Summary for the year.—In a total of 216 cases, 15 deaths, at least 28 cases *were due to meat which was inspected and passed as free from trichinæ.* In at least 50 other cases "it could not be proved that the meat had not been inspected according to regulations." Numerous other cases remain "unexplained;" 14 cases, 6 deaths, were due to condemned meat which was known to be trichinous. The outbreak at Krotoschin is interesting.

No official or other sanitary reports for 1889 are accessible to me for the following Regierungs-Bezirke: Danzig, Liegnitz, Magdeburg, Sigmaringen.

No cases of trichinosis in man for 1889 were found in the official sanitary reports or other sources for the following Regierungs-Bezirke: Aachen (Trost, 1893), Arnsberg (Tenholt, 1894, p. 97), Aurich (Quittel, 1894, p. 43), Bromberg (Peters, 1893, pp. 47–49), Cassel (Weiss, 1894, p. 99), Coblenz (Massenbach, 1893), Coeslin (Roth, 1893, p. 88), Cologne (Schwartz, 1893, p. 35), Erfurt (Pippow, 1894, p. 64), Gumbinnen (Passauer, 1893, p. 115), Hannover (Becker, 1894, p. 81), Hildesheim (Grun, 1894, p. 59), Lüneburg (Nöller, 1897, p. 184), Minden (Rapmund, 1894, pp. 101, 133), **Münster** (Kölker, 1894, p. 66), Oppeln (Schmidtmann. 1893, p. 56), **Osnabrück** (Bitter, 1894, p. 27), Potsdam (Kanzow, 1893), Schleswig-Holstein (Bockendahl, 1893, pp. 92–93), Stade (Bohde, 1893), Stettin (Katerbau, 1893, p. 94), Stralsund (Haselberg, 1894), Trier (Schwartz, 1894, pp. 41, 54), Wiesbaden (Pfeiffer, 1894, p. 36).

Alt-Wartenburg, Kr. Allenstein, R.-B. Königsberg, January .... 6 cases, 1 death.

Veröff., 1891, p. 245: 6 cases, 1 death.—Nath, 1894, p. 55: 6 cases, 0 death.—Ostertag, 1895, p. 417, and 1899, p. 505: 6 cases, 1 death.

Ahlsdorf, Hergisdorf, etc., Kr. Mansfeld, R.-B. Merseburg ...... [18 cases, 0 death].

Veröff., 1891, p. 245.—Ostertag, 1895, p. 417: Cases unexplained. See, however, Eisleben.

Berlin and Charlottenburg .... At least 8 cases, 1 death.

Wernich and Wehmer, 1893, pp. 133, 246: In this official report I found no cases recorded for 1889, 1890, and 1891. See, however, the following entries. The official statistics for Prussia (Preussen, 1897, pp. 188, 189) omit the Berlin cases.

Berlin .... [3 cases, 0 death].

Barnick, 1897, p. 214: *The hog was inspected in Rosenberg and passed as free from trichinæ.* Four cases occurred in Rosenberg from eating the meat, and "several" (3?) relatives in Berlin ate of a smoked ham from this hog which was sent to them. They became sick with trichinosis. See Rosenberg.

Berlin .... [8 cases, 0 death].

Ostertag, 1895, p. 411: In 1889 there were 8 cases in Berlin. All of these cases were due to pork sent in from outside of Berlin. [These figures do not agree in all detail with the official statistics].—Ostertag, 1899, p. 497: 8 cases, 0 death.

Berlin .... [4 cases, 0 death].

Veröff., 1889, p. 199: Stadt. Krankh. Freidrichshain and Bethanien.

Berlin .... [3 cases, 1 death].

Veröff., 1889, p. 341: Moabit Krankenhaus.

Berlin .... [1? case, 1 death].

Veröff., 1889, p. 483: Augusta Hospital, 1 death.

Berlin .... [1 case, 0 death].

Veröff., 1889, p. 567: Augusta Hospital, 1 case.

Breslau (R.-B.) .... 14 cases, 6 deaths.

Wolff, E., 1893, p. 49: Uncooked pork, which was brought from Kr. Wartenberg, although the meat had been declared trichinous, caused an outbreak of 14 cases, 6 of which were fatal. The owner and the seller were imprisoned for fifteen years. The date and place of this outbreak are not given, but this may be the same epidemic to which Schilling refers (see Wartenberg, 1889–1891).—Prussia, 1897, p. 188: Date not given. Report for 1889–1891.

Burgwenden, Kr. Eckartsberga, R.-B. Merseburg, February ...... 5 cases, 0 death.

Veröff., 1891, p. 245.—Wolff, 1893, pp. 88, 89: *The hog had been inspected and passed as free from trichinæ.* "Dieser [Kreisphysikus] stellte am 16. Februar die Trichinenkrankheit fest und wies in den vorhandenen Vorräthen die Trichinen nach, aber in so geringer Zahl, dass von einem fahrlässigen Verfahren bei der Untersuchung nicht die Rede sein konnte."—Ostertag, 1895, p. 417.—Prussia, 1897, p. 489: " * * * lag ein entschuldbares Uebersehen von Trichinen seitens des Fleischbeschauers vor; sie waren nämlich nur in so spärlicher Zahl vorhanden, dass sie selbst bei genauer Durchmusterung der Präparate schwer entdeckt werden konnten."

Düsseldorf (R.-B.) .... 20 cases, ? deaths.

Weiss, 1893, p. 137: This Regierungs-Bezirk averages 20 cases per year ("durchschnittlich 20 Erkrankungen jährlich im hiesigen Regierungs-Bezirk"), but unfortunately the details are not given. Report for 1889–1891. It appears possible that Weiss has here simply adopted for 1889–1891 the estimate he made in 1890 based upon the years 1877–1886. The author of "Prussia" (1897, p. 189) accepts Weiss's estimate. The application of the average for 1877–1886 to the years 1889–1891 is, however, open to decided question. Unless cases were actually known for 1889–1891, there is no ground for recording 20 cases per year based upon an average of former years.—Prussia, 1897, p. 189.

Eisleben, Wimmelberg, Ahlsdorf, Hergisdorf, etc., R.-B. Merseburg, September .... 50 cases, 0 death.

Wolff, 1893, p. 89: The meat came from a party in Eisleben, in whose household 3 cases occurred. "*It could not be proven that the suspected hog had not been inspected according to regulations.*" *It seems, therefore, probable that the meat which gave rise to the disease was inspected and passed as free from trichinæ.* "Die Sache wurde an die Staatsanwaltschaft zur weiteren Verfolgung abgegeben, doch musste das Verfahren eingestellt werden, weil der Nachweiss nicht geführt werden konnte, dass das verdächtige Schwein nicht vorschriftsmässig untersucht worden wäre."—Veröff., 1891, p. 245: 20 cases in Eisleben, 12 in Wimmelberg, 18 in Ahlsdorf, Hergisdorf, etc.—Prussia, 1897, p. 189: It was not possible to demonstrate the source of infection. "Die Infektionsquelle war bei dieser Epidemie * * * nicht mit Sicherheit nachzuweisen."

Fischhausen, Kr. Fischhausen, R.-B. Königsberg, February ...... 7 cases, 1 death.

Veröff., 1889, p. 135: 7 cases.—Veröff., 1891, p. 245: 7 cases, 1 death. Hog had not been examined.—Ostertag, 1895, p. 417, and 1899, p. 505. [Could this be the same as Alt-Powayen, 1890?]

Frankfurt (R.-B.) .... [8 cases, 0 death].

See Gr. Gandern.

Gr. Gandern, Kr. West-Sternberg, R.-B. Frankfurt. 8 cases, 0 death.

Wiebecke, 1893, p. 70: 6 to 8 persons. *Apparently the meat was inspected and passed as free from trichinæ,* for the meat inspector, who was the sickest of all, was discharged.—Prussia, 1897, p. 188: 8 cases, "wobei der Fleischbeschauer, dem das Amt entzogen wurde, selbst am schwersten erkrankte."

Gr. Peterwitz, Kr. Rosenberg, R.-B. Marienwerder. 3 cases, 0 death.

Barnick, 1897, pp. 214, 215: Hog not inspected, on which account the owner was fined 10 marks.

Halle a. S., R.-B. Merseburg, November .... 14 cases, 0 death.

Veröff., 1891, p. 245.—Wolff, 1893, p. 89: Source of meat not proved.—Ostertag, 1895, p. 417, and 1899, p. 505: 14 cases in 7 families. Source of infection undetermined ("Die Ursache blieb im letzten [i. e., this] Fall unaufgeklärt).—Prussia, 1897, p. 189.

Hergisdorf.

See Eisleben.

Königsberg (R.-B.) .... [24 cases, 6 deaths].

Prussia, 1897, p. 188: 5 epidemics in R.-B. Königsberg, with 33 cases, 5 deaths, during the years 1889–1891. *In one case the meat was inspected and passed as free from trichinæ* ["*In einem Falle lag erhebliche Fahrlässigkeit des* (*deshalb abgesetzten*) *Fleischbeschauers vor,* er hatte das betreffende Fleisch für trichinenfrei erklärt. Für die anderen Fälle ist es nicht ersichtlich ob das Fleisch überhaupt untersucht worden war."] According to my statistics there were 7 outbreaks with 43 cases, 8 deaths, during 1889–1891. For 1889, see Alt-Wartenburg, 6 (1); Königsberg, 3 (1); Fischhausen, 7 (1); Kossen, 8 (3).

Königsberg [R.-B. Königsberg?], December .... 3 cases, 1 death.

Lewin, 1891: 1 case, 1 death, and "other cases." Trichinæ found.

Kossen (Gut), Kr. Heilsberg, R.-B. Königsberg, January .... 8 cases, 3 deaths.

Veröff., 1889, p. 93: 8 cases, 3 deaths.—Veröff., 1891, p. 245: 8 cases, 2 deaths. Hog not inspected.—Nath, 1894, pp. 54, 55: 8 cases, 3 deaths.—Ostertag, 1895, p. 417, and 1899, p. 505: Though they do not agree in all detail, probably all of these cases refer to the same outbreak.

Krotoschin [R.-B. Posen?] .... 3? cases, 2 deaths.

Veröff., 1891, Beilage, p. 64*: Samples were sent to an inspector, who refused to make the examination because he was not appointed for the village in which the hog was slaughtered. Several cases, 2 deaths.

Löbau, R.-B. Marienwerder .... 5 cases, 0 death.

Prussia, 1897, p. 188.

Magdeburg (R.-B.) .... [50 cases, 0 death].

See Rogätz.

Marienwerder (R.-B.) .... [12 cases, 0 death].

See Löbau, 5; Gr. Peterwitz, 3; and Rosenberg, 4.

Prussia, 1897, p. 188.

Merseburg (R.-B.) .... [69 cases, 0 death].

See Burgwenden, 5; Eisleben, 50; and Halle, 14.

Opalenitza, Kr. Grätz, R.-B. Posen, September.... 8 cases, 0 death.

Veröff., 1891, p. 245: "*Grobe Pflichtwidrigkeit eines Fleischbeschauers.*" *The hog was evidently inspected and passed as free from trichinæ.*—Géronne, 1894, p. 121: "*Als Ursache konnte grobe Pflichtwidrigkeit eines Fleischbeschauers festgestellt werden.*"—Ostertag, 1899, p. 505.

Posen (R.-B.) .... [11 cases, 2 deaths].

See Krotoschin, 3 (2); and Opalenitza, 8.

Prussia, 1897, p. 188: "Im Regierungs-Bezirke Posen wurden 44 Fälle (darunter vier Todesfälle) bekannt; in zwei Fällen wurden die Fleischbeschauer arger Fahrlässigkeit überführt und gerichtlich verurtheilt."

Rogätz, R.-B. Magdeburg, September–October ... 50 cases, 0 death.

Archiv f. anim. Nahrungsmittelk., 1889, V (2), p. 28: "Im Laufe des September und Oktober d. J. erkrankten in Rogätz (Rgb. Magdeburg) ca. 50 personen an der Trichinosis. Bei 15 Patienten waren die Krankheitserscheinungen recht schwer, doch wurden Todesfälle nicht beobachtet."

Rosenberg, R.-B. Marienwerder .... 4 cases, 0 death.

Barnick, 1897, p. 214: *The hog, home-slaughtered, was inspected and passed as free from trichinæ.* Several relatives in Berlin were also taken sick as a result of eating of the meat. The inspector's license was annulled, and he was imprisoned for two months.—Veröff., 1889, p. 235: 5 cases for Kreis Rosenberg.—Prussia, 1897, p. 188: 7 cases in Kreis Rosenberg. See also Gr. Peterwitz.

Wartenberg (near), March–April .... [15 cases, 4 deaths].

Schilling, 1889, pp. 289–291: The hog, slaughtered February 26, had been condemned. It was insured, and the butcher received the insurance. Instead of destroying the carcass, he gave some of it to his relatives and sold the rest. Cases belonging to this outbreak occurred in "Städten B. und O." See Breslau.

Wimmelberg, R.-B. Merseburg, September...... [12 cases, 0 death].
See Eisleben.
Veröff., 1891, p. 245.—Ostertag, 1895, p. 417.

1890: 96 cases, 0 death.

Summary for the year.—In a total of 96 cases, 0 death, *11 cases were due to pork which was inspected and passed as free from trichinæ.* Eleven cases were due to sausage imported from Russian Poland. The 8 cases in Johannisburg district and the subsequent trial shed a light on the German system. The outbreak of 3 cases in Kr. Witkowo is interesting as showing that a microscopic inspection can not be guaranteed.

No official or other sanitary reports for 1890 are accessible to me for the following Regierungs-Bezirke: Danzig, Liegnitz, Magdeburg, Sigmaringen.

No cases of trichinosis in man for 1890 were found in the official sanitary reports or other sources for the following Regierungs-Bezirke: Aachen (Trost, 1893), Arnsberg (Tenholt, 1894, p. 97), Aurich (Quittel, 1894, p. 43), Breslau (Wolff, E., 1893, p. 49), Cassel (Weiss, 1894, p. 94), Coblenz (Massenbach, 1893), Cologne (Schwartz, 1893, p. 35), Coeslin (Roth, 1893, p. 88), Erfurt (Pippow, 1894, p. 64), Hannover (Becker, 1894, p. 81), Hildesheim (Grun, 1894, p. 59), ? Königsberg (Nath, 1894, p. 55), Lüneburg (Nöller, 1897, p. 184), Merseburg (Wolff, 1893, p. 89), Minden (Rapmund, 1894, pp. 101, 133), Münster (Kölker, 1894, p. 66), Oppeln (Schmidtmann, 1893, p. 56), Osnabrück (Bitter, 1894, p. 27), Potsdam (Kanzow, 1893), Schleswig-Holstein (Bockendahl, 1893, pp. 92, 93), Stade (Bohde, 1893), Stettin (Katerbau, 1893, p. 94), Stralsund (Haselberg, 1894), Trier (Schwartz, 1894, pp. 41, 54), Wiesbaden (Pfeiffer, 1894, p. 36).

Alt-Powayen, Kr. Fischhausen, R.-B. Königsberg........... [7 cases, 2 deaths].
Nath, 1894, p. 55: Rauchwurst. There is evidently a mistake somewhere. The date may be a misprint for 1889 or 1891, for on the same page Nath states: "Das Jahr 1890 blieb frei." Could this be the same as Fischhausen, 1889?

Berlin and Charlottenburg .... [1 case, 0 death].
Wernich and Wehmer, 1893, pp. 133, 246: No cases recorded in official report for 1889–1891. See, however, below.

Berlin.................................... [1 case, 0 death].
Veröff., 1890, p. 49: Friedrichshain Hospital.

Bromberg (R.-B.).......................... [23 cases, 0 death].
See Bromberg, 11; Witkowo, 3, 7 Wongrowitz, 2.

———, R.-B. Bromberg .... 11 cases, 0 death.
Peters, 1893, p. 48: Family and friends of a physician. Exact locality not given. Sausage was imported from Russian Poland ("Die Wurst war aus Russisch-Polen importirt").—Prussia, 1897, p. 188: 1889–1891, 5 epidemics with 24 cases, 0 death, in R.-B. Bromberg. "In einem Fälle, wo elf Personen erkrankten, handelte es sich um ungeräucherte, nur getrocknete und aus Russisch-Polen eingeführte Wurst. Angesichts dieses Vorkommnisses ist durch eine Polizei-Verordnung vom 29. März 1889 [1890?] die obligatorische Untersuchung des aus Russland eingeführten Schweinefleisches angeordnet worden."

Budzyn (Gut), Kr. Schrim, R.-B. Posen .... 16 cases, 0 death.
Géronne, 1894, p. 121.

Culm (Kr.), R.-B. Marienwerder .... 4 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1891, I (4), January, p. 67: Several light cases.—Barnick, 1897, p. 215: Meat not inspected.—Prussia, 1897, p. 188.

Deutsch Krone, R.-B. Marienwerder .... 1 case, 0 death.

Finger, 1894a: Young hog was sick; when killed not examined.—Finger, 1894b, pp. 376–381: An interesting case of localized trichinosis.—Prussia, 1897, p. 188.

Düsseldorf (R.-B.) .... 20 cases, ? death.

Weiss, 1893, p. 137: See remarks under 1889.

Frankfurt (R.-B.) .... [20 cases, 0 death].

See Reppen.

Gumbinnen (R.-B.) .... [11 cases, 0 death].

See Johannisburg, 3, 8.

Passauer, 1893, pp. 111–115, apparently does not mention any cases in his official report, but Esser and Schütz record two outbreaks in Johannisburg Kreis.

Johannisburg (Kr.), [R.-B. Gumbinnen] (1890-1891) .. 3 cases, 0 death.

Esser and Schütz, 1894, p. 57: Hog was not inspected. "Several" cases. One woman aborted.

Johannisburg (Kr.), [R.-B. Gumbinnen] (1890–1891) .. 8 cases, 0 death.

Esser and Schütz, 1894, pp. 55–57: *The hog was inspected and passed as free from trichinæ.* In the trial of the inspector it was proved that he knew nothing about his business. Esser and Schütz do not state how many other hogs this inspector had examined, but District Veterinarian Kleinpaul says that the trichina inspection of the Johannisburg district is very poor. With this statement by a Government official in hand, the Germans have, nevertheless, accepted the statistics furnished by men whom their own officials acknowledge as totally incompetent to furnish the data, and who even have no conception of the methods of inspection.

Königsberg (R.-B.) .... [7 cases, 2 deaths].

See Alt-Powayen. Omitted from statistics; probably belongs to 1889.

Marienwerder (R.-B.) .... [5 cases, 0 death.]

See Culm, 4; Deutsch Krone, 1.

Opalenitza, Kr. Graetz, and in Kr. Schrim, R.-B. Posen ......
[16 cases, 0 death].

Veröff., 1894, p. 209.—Ostertag, 1895, p. 417, and 1899, p. 506: See Budzyn; probably the same.

Posen (R.-B.) .... [16 cases, 0 death].

See Budzyn, 16; and Opalenitza.

Reppen, R.-B. Frankfurt .... 20 cases, 0 death.

Wiebecke, 1893, p. 70: About 20 persons taken sick. Details not given. Not stated whether the meat was inspected or not, although inspection is obligatory in 20 Kreisen.—Prussia, 1897, p. 188.

Witkowo (Kr.), R.-B. Bromberg, January .... 3 cases, 0 death.

Peters, 1893, pp. 47, 48: *The hog was inspected and passed as free from trichinæ.* Afterwards trichinæ were found, but not until a large number of preparations were

andere Personen der Familie, die von demselben rohen Fleisch gegessen hatten, zeigten gar keine Krankheitserscheinungen. Da hiernach und auf Grund des ärztlichen Befundes angenommen werden musste, dass auch bei genauer Untersuchung durch den Fleischbeschauer, der das Fleisch für trichinenfrei erklärt hatte, die Trichinen hätten unentdeckt bleiben können, so wurde von Seiten der Staatsanwaltschaft von der Erhebung einer Anklage gegen den als sehr gewissenhaft bekannten Fleischbeschauer, einen Lehrer, Abstand genommen."

Witkowo (Kr.), R.-B. Bromberg, May .... 7 cases, 0 death.

Peters, 1893, p. 48: The infection came from some sausage and pork eaten twelve days before, and obtained from butchers in Gneson and Tremessen. Microscropic inspection of what remained was negative.

Wongrowitz (neighborhood of), R.-B. Bromberg, August ....
2 cases, 0 death.

Peters, 1893, p. 48: Source of infection could not be determined.

1891: 175 cases, 12 deaths.

Summary for the year.—In a total of 175 cases, 12 deaths, at least 116 cases, 10 deaths, *were due to meat which was inspected and passed as free from trichinæ.* American pork began to be imported toward the end of this year, but not a single case of trichinosis is reported as due to such pork.

No official sanitary reports for 1891 are accessible to me for the following Regierungs-Bezirke: Danzig, Magdeburg, Sigmaringen.

No cases of trichinosis in man have been found in the official sanitary reports or other sources for the following Regierungs-Bezirke: Aachen (Trost, 1893), Aurich (Quittel, 1894, p. 43), Breslau (Wolff, E., 1893, p. 49), Cassel (Weiss, 1894, p. 99), Coblenz (Massenbach, 1893), Coeslin (Roth, 1893, p. 88), Cologne (Schwartz, 1893, p. 35), Erfurt (Pippow, 1894, p. 64), Frankfurt (Wiebecke, 1893, p. 70), Gumbinnen (Passauer, 1893, pp. 111, 115), Hannover (Becker, 1894, p. 81), Hildesheim (Grun, 1894, p. 59), Lüneburg (Nöller, 1897, p. 184), Marienwerder (Barnick, 1897, pp. 214, 215), Minden (Rapmund, 1894, pp. 101, 133), Münster (Kölker, 1894, p. 66), Oppeln (Schmidtmann, 1893, p. 61), Osnabrück (Bitter, 1894, p. 27), Schleswig-Holstein (Bockendahl, 1893, pp. 92, 93), Stade (Bohde, 1893), Stralsund (Haselberg, 1894), Trier (Schwartz, 1894, pp. 41, 54), Wiesbaden (Pfeiffer, 1894, p. 36).

Altena, R.-B. Arnsberg, October .... 40 cases, 0 death.

Zeitschrift f. Fleisch- und Milchhygiene, 1891, II (3), December, pp. 60, 61: More than 30.—Tenholt, 1894, p. 97: There is some doubt as to whether the meat was inspected or not.—Veröff., 1895, p. 118.—Prussia, 1897, p. 189. "Der Schlachthaus-Inspektor selbst, ein approbierter Tierarzt, hatte ein Schwein mit der amtlichen Beglaubigung, dass es untersucht und trichinenfrei sei, dem freien Verkehre überlassen; erst etwa 14 Tage später stellte es sich heraus dass das Fleisch dieses Schweines förmlich mit Trichinen wie übersäet war. An dem Tage, als dieses stark trichinöse Schwein in dem Schlachthause untersucht wurde, hatte derselbe Tierarzt im ganzen 20 Schweine mikroskopisch zu untersuchen und es deshalb erklärlich, dass das Ergebniss der Untersuchung kein zuverlässiges war. Im ganzen wurden in Altena 1889–1891 unter 30,267 untersuchten Schweinen nur drei [!] trichinöse gefunden." According to this account, therefore, *the hog was inspected and passed as free from trichinæ.* That a man can not inspect 20 hogs in one day does not, however, speak much for his ability as a microscopist.

Arnsberg (R.-B.) .... [40 cases, 0 death].

See Altena.

Berlin .... 1 case, 0 death.

Veröff., 1891, p. 135: St. Hedwig's hospital.—Wernich and Wehmer, 1893, pp. 133, 246: Do not record any cases for Berlin or Charlottenburg in their official statistics.

Bromberg (R.-B.) .... [1 case, 0 death].

See Wongrowitz.

Düsseldorf (R.-B.) .... 20 cases, ? deaths.

Weiss, 1893, p. 137: An average of 20 cases per year.

Garby, Kr. Schroda, R.-B. Posen .... [6 cases, 1 death].

Veröff., 1894, p. 209: *The hog was inspected and passed as free from trichinæ.* The inspector was imprisoned for 6 months.—Ostertag, 1895, p. 417, and 1899, p. 506.—Géronne, 1894, pp. 121–123: "Wurde seitens des Gerichts die Schuld des Fleischbeschauers an dem Ausbruche der Trichinose für erwiesen angenommen und dieser wegen fahrlässiger Tödtung zu 6 Monaten Gefängniss verurtheilt."

Graetz, Kr. Graetz, R.-B. Posen .... [6 cases, 0 death].

Veröff., 1894, p. 209.—Ostertag, 1895, p. 417, and 1899, p. 506.—Géronne, 1894, p. 121.

Gr. Purden, Kr. Allenstein, R.-B. Königsberg, January ...... 7 cases, 0 death.

Nath, 1894, p. 55: Raw sausage.—Veröff., 1894, p. 209.—Ostertag, 1895, p. 417: The meat was eaten before the hog was inspected. Afterwards it was found to contain numerous trichinæ.

Jersitz, R.-B. Posen .... [2 cases, 0 death].

Zeitschr. f. Fleisch- und Milchhyg., 1891, I (8), Mai, p. 142: Source of meat could not be traced.

Königsberg (R.-B.) .... [16 cases, 0 death].

Veröff., 1891, p. 105: Reports 11 cases, 0 death. See Gr. Purden, 7; Kutzburgmühle, 5; Soldau, 4.

Kutzburgmühle, Kr. Ortelsburg, R.-B. Königsberg. 5 cases, 0 death.

Veröff., 1894, p. 209: *The hog was inspected and passed as free from trichinæ.*—Nath, 1894, p. 55: Hog inspected and passed.—Ostertag, 1895, p. 417.

Liegnitz (R.-B.) .... [61 cases, 8 deaths].

See Mühlrädlitz, 55 (6); and Würchland, 6 (2).

Merseburg (R.-B.) .... [3 cases, 0 death].

See Weissenfels.

Mühlrädlitz, Kr. Lüben, R.-B. Liegnitz .... 55 cases, 6 deaths.

Zeitschr. f. Fleisch- und Milchhyg., 1891, I (12), September, p. 223.—Idem, 1891, II (1), October, p. 18.—Idem, 1892, II (7), April, p. 143.—Philipp, 1896, p. 110.

The hog was inspected and passed as free from trichinæ. The inspector was imprisoned one year. In this and the Glogau outbreaks, there were together 8 deaths, but this report does not state where the deaths were. As Veröff., 1893, p. 291, refers to an outbreak in Liegnitz of more than 25 cases, with 6 deaths, *due to a hog which was inspected and passed as free from trichinæ*, and where the inspector was imprisoned for a year, I assume that the outbreak is the one here cited.—Prussia, 1897, pp. 188, 189: "In beiden Fällen [s. also Würchland] war arge Nachlässigkeit des (übrigens zu Gefängniss verurteilten) Fleischbeschauers die Ursache der Epidemie."

M., Court Liegnitz, R.-B. Liegnitz .... [25 cases, 6 deaths].
Veröff., 1893, p. 291: *The hog was inspected and passed as free from trichinæ.* Inspector, who had not carried out regulations, was imprisoned for one year. More than 25 cases, 6 fatal. See Mühlrädlitz.

Posen (R.-B.) .... 24 cases, 4 deaths.
Veröff., 1891, reports 24 cases, 0 death, as follows: p. 151, 3 cases; p. 171, 1 case; p. 187, 4 cases; p. 239, 1 case; p. 253, 2 cases; p. 273, 4 cases; p. 317, 3 cases; p. 695, 6 cases. See Garby, 6 (1); Graetz, 6; Jersitz, 2; Schrimm, 8 (3).

Potsdam (R.-B.) .... [1 case, 0 death].
See Ruppin.

Ruppin, R.-B. Potsdam .... 1 case, 0 death.
Kanzow, 1893, p. 92: Patient ate raw meat, though warned not to do so.

Schrimm (Kr.), R.-B. Posen .... [8 cases, 3 deaths].
Veröff., 1894, p. 209.—Ostertag, 1895, p. 417, and 1899, p. 506.—Géronne, 1894, p. 121: Stadt Kurnik and Daszewice, Kr. Schrimm.

Soldau, Kr. Niedenburg, R.-B. Königsberg .... 4 cases, 0 death.
Zeitschr. f. Fleisch- und Milchhyg., 1892, II (4), January, p. 81: From Allg. Fl. Zeitung. Four soldiers ate raw meat. *Hog had been officially inspected and passed as free from trichinæ.*

Stettin (R.-B.) .... [8 cases, 0 death].
See Stettin (Stadt).

Stettin, R.-B. Stettin, May .... 8 cases, 0 death.
Veröff., 1894, p. 209.—Ostertag, 1895, p. 417.—Katerbau, 1893, p. 94: Ham came from Memel. It is not stated whether or not it was inspected. Patients in 3 families.—Prussia, 1897, p. 188.

Weissenfels, R.-B. Merseburg, August .... 3 cases, 0 death.
Wolff, 1893, p. 89: Cases contracted in Schlesien.

Wongrowitz (Kr.), R.-B. Bromberg .... 1 case, 0 death.
Peters, 1893, pp. 48, 49: A laborer had his hog killed, but did not have it inspected.—Siedamgrotzky, 1896, p. 51: He was imprisoned one day.

Würchland, Kr. Golgau, R.-B. Liegnitz .... 6 cases, 2 deaths.
Philipp, 1896, p. 110: *The hog was inspected and passed as free from trichinæ.* The inspector excused himself by stating that he had not been properly instructed in the course he had taken. "Der Fleischbeschauer im Kreise Glogau hatte zu seiner Entschuldigung angeführt, dass er bei dem ihm ertheilten Unterricht nicht besondere Belehrung darüber erhalten habe, wie die Fleischproben von dem Schweine zu entnehmen und brauchbare mikroskopische Präparate anzufertigen."—Zeitschr. f. Fleisch- und Milchhyg., 1891, I (10), July, p. 183: Glogau and Würchland, 2 deaths.—Prussia, 1897, pp. 188, 189.

1892: 108 cases, 4 deaths.

Summary for the year.—In a total of 108 cases, 4 deaths, 19 cases, 1 death, appears to have been *due to meat which was inspected and passed as free from trichinæ.* In a number of cases it is not definitely reported whether they were due to inspected or uninspected meat. From the records published thus far, the meat appears to have been definitely traced in 8 outbreaks (63 cases, 4 deaths). In the case of

2 outbreaks (Köthen 40 cases, Mohrungen 5 cases) nothing is said of the source of infection; it would seem strange, however, if the source were not traced in an outbreak of 40 cases. Not a single case is reported as being due to American pork.

The official sanitary reports for this year are not accessible to me for the following Regierungs-Bezirke (probably they are not yet published): Arnsberg, Magdeburg Münster, Osnabrück.

No cases of trichinosis in man during 1892 have been found in the official sanitary reports or other sources for the following Regierungs-Bezirke: Aachen (Schlegtendal, 1898, p. 92), Aurich (Quittel, 1896, p. 90), Berlin and Charlottenburg (Wernich and Springfeld, 1897 pp. 153, 371), Cassel (Weiss, 1896, p. 108), Coblenz (Wehmer, 1897), Coeslin (Grisar, 1896, pp. 82, 116), Cologne (Weyhöfer, 1897), Düsseldorf (Michelsen, 1897), Erfurt (Pippow, 1897, p. 82), Gumbinnen (Passauer, 1896, p. 149), Hannover (Becker, 1897, pp. 75, 89), Hildesheim (Grun, 1897), Liegnitz (Philipp, 1896, p. 110), Lüneburg (Nöller, 1897, p. 184), Marienwerder (Barnick, 1897, pp. 214, 215), Merseburg (Wolff and Penkert, 1896, p. 131), Minden (Rapmund, 1897, pp. 95, 133), Oppeln (Roth, 1896, p. 108), Schleswig-Holstein (Bockendahl, 1895, pp. 84, 85), Sigmaringen (Schmidt, 1897, p. 71), Stade (Rusak, 1897, p. 94), Stettin (Katerbau, 1896, p. 108), Stralsund (Haselberg, 1898), Trier (Schwartz, 1897, p. 62), Wiesbaden (Pfeiffer, 1897, p. 24).

Breslau (R.-B.) .... [3 cases, 0 death.]

See Karbitz.

Bromberg (R.-B.) .... [12 cases, 0 death.]

See Twierdzyn.

Danzig (R.-B.) .... [8 cases, 1 death.]

Borntraeger, 1897, p. 106: "Trichinose ist nicht vorgekommen." See, however, Leske, 8 (1).

Dembicz (Gut) **bei Schroda**, Kr. Schroda, R.-B. Posen, January .... 4 cases, 1 death.

Schmidt, 1897, p. 150: The hog had not been inspected but was later found to be trichinous.—Zeitschr. f. Fleisch- und Milchhyg., 1892, II (6), März, p. 122: This reference may belong here: "Die Familie eines Schmiedes. Dieser hatte ein Schwein geschlachtet, in unglaublicher Verblendung sich aber etwas Fleisch von einem Schlächtermeister geben und dieses an Stelle der Proben von seinem eigenen Schweine untersuchen lassen."

Frankfurt (R.-B.) .... [4 cases, 1 death.]

See Mietzelfelde.

Karbitz, Kr., Militsch, R.-B. Breslau .... 3 cases, 0 death.

Alexander, 1898, p. 106: *Meat was evidently inspected and passed as free from trichinæ.* "Der Fleischbeschauer, der einer grossen Fahrlässigkeit bei der Untersuchung überführt wurde, wurde seines Amtes entsetzt und wegen fahrlässiger Körperverletzung zu 6 Wochen Gefängniss verurtheilt." No other cases are mentioned for 1892–1894.

Königsberg (R.-B.) .... [10 cases, 0 death.]

See Magergut, 5; Mohrungen, 5.

Veröff., 1894, p. 209, and Ostertag, 1895, p. 417, cite 4 cases, 0 death, for this Regierungs-Bezirk. It is not clear whether the citation refers to the Magergut outbreak or not.

Köthen [Kr. Oberbarnim, R.-B. Potsdam, or in Anhalt?]..... 40 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1892, II (12), Sept., p. 250: "Eine Trichinen-Epidemie ist in Köthen ausgebrochen. Glücklicherweise sind nur ca. 40 Personen und diese durchweg leicht erkrankt."

Kosten, R.-B. Posen, September................ 21 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1892, III (2), November, p. 43: "Wen das Verschulden hieran trifft, konnte noch nicht ermittelt werden;" 20 cases.—Schmidt, 1897, p. 150: All ate meat obtained from the same butcher. Microscopic examination of what remained was negative. "Da wohl das sämmtliche Fleisch des betreffenden Schweines inzwischen verkauft worden war."

Leske [Kr. Marienburg, R.-B. Danzig?]........... 8 cases, 1 death.

Zeitschr. f. Fleisch- und Milchhyg., 1892, III (5), February, p. 100: "Ist die Familie und das Gesinde eines Gutsbesitzers stark an Trichinosis erkrankt. Das Dienstmädchen erlag der Krankheit. Der Gutsbesitzer hatte zum Hausgebrauche 3 Schweine geschlachtet, welche bei der nachträglich veranlassten Untersuchung sich sämmtlich als stark mit Trichinen durchsetzt herausstellten."—Archiv f. animal. Nahrungsmittelk., 1892, VII (6–7), p. 92: "In Folge des Genusses von Schweinefleisch ist die ganze Familie Sch. in Leske—Frau und fünf Kinder und eine zum Besuche sich dort aufhaltende Verwandte aus Neuteich an der Trichinose schwer erkrankt."

Magergut, Kr. Osterode, R.-B. Königsberg .... 5 cases, 0 death.

Nath, 1897, p. 106: 1 person from Brückendorf; the other four belonged to one family. Meat salted and smoked. Cooked cured meat from same animal did no harm.

Mietzelfelde bei Soldin, R.-B. Frankfurt.......... 4 cases, 1 death.

Frankfurt, 1896, p. 68: *It would appear that the meat was inspected and passed as free from trichinæ*, since the inspector resigned; "In Mietzelfelde bei Soldin wurden 4 Personen von Trichinose befallen, von denen ein bereits anderweitig erkranktes Kind starb. Der Fleischbeschauer legte sein Amt nieder." Exact date (1892, 1893, or 1894) not given.

Mohrungen, R.-B. Königsberg..................... 5 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1892, II (6), March, p. 122: From Allg. Fl. Z. [See Magergut, Kr. Osterode, 5 cases. Could these possibly be the same?]

Posen (R.-B.)............................. [31 cases, 2 deaths].

See Dembicz, 4 (1); Kosten, 21; and Samolentsch, 6 (1).—Veröff., 1892, p. 731, reports 10 cases, 0 death, and 1894, p. 209: 22 cases, 3 deaths. I am unable to interpret the statistics as given by the Gesundheitsamt.—Ostertag, 1895, p. 417: records 22 cases, 0 death.

Potsdam (R.-B.) .... [40 cases, 0 death].

See Köthen. No cases have been found in Kanzow's (1897) official report.

Samolentsch, Kr. Samter, R.-B. Posen, March .... 6 cases, 1 death.

Schmidt, 1897, p. 150: Examination of meat which remained was negative. Diagnosis was made on symptoms. It is not stated whether trichinæ were found on postmortem.

Twierdzyn (Rittergut), Kr. Mogilno, R.-B. Bromberg, March.. 12 cases, 0 death.

Siedamgrotzky, 1896, p. 51: 9 persons in one place and "several" others at other places. Two hogs were slaughtered. *They were inspected and passed as free from trichinæ*, but were later reexamined and found to be trichinous.

1893: 28 cases, 1 death.

Summary for the year.—In a total of 28 cases, 1 death, *at least 7 cases are reported as due to meat which had been inspected and passed as free from trichinæ.* Of the remaining 21 cases, 2 outbreaks (5 cases) are simply mentioned without any reference to the source of infection. In 2 outbreaks (6 cases, 1 death) the meat appears to have been definitely traced, while in 10 cases (Berlin 9, Zeits 1) the statement is made that the meat had been brought from other places. Hence, the source of infection appears to have been definitely traced, but the source of the meat is not definitely stated. Not a single case is reported as being due to American pork.

The official sanitary reports for this year are not accessible to me for the following Regierungs-Bezirke: Arnsberg, Münster, Osnabrück.

No cases of trichinosis in man during 1893 have been found in the official sanitary reports or other sources for the following Regierungs-Bezirke: Aachen (Schlegtendal, 1898, p. 92), Aurich (Quittel, 1896, p. 90), Breslau (Alexander, 1898), Bromberg (Siedamgrotzky, 1896, pp. 51, 52), Cassel (Weiss, 1896, p. 108), Coblenz (Wehmer, 1897), Coeslin (Grisar, 1896, pp. 82, 83), Cologne (Weyhöfer, 1897), Danzig (Borntraeger, 1897, p. 160), Düsseldorf (Michelsen, 1897), Erfurt (Pippow, 1897, p. 82), Frankfurt (Frankfurt, 1896, p. 68), Gumbinnen (Passauer, 1896, p. 149), Hannover (Becker, 1897, pp. 75, 89), Hildesheim (Grun, 1897), Liegnitz (Philipp, 1896, p. 110), Lüneburg (Nöller, 1897, p. 184), Marienwerder (Barnick, 1897, pp. 214, 215), Minden (Rapmund, 1897, p. 95), Oppeln (Roth, 1896, p. 108), Potsdam (Kanzow, 1897), Schleswig-Holstein (Bockendahl, 1895), Sigmaringen (A. Schmidt, 1897, p. 71), Stade (Rusak, 1897, p. 94), Stettin (Katerbau, 1896, p. 108), Stralsund (Haselberg, 1898), Trier (Schwartz, 1897, p. 62).

Berlin .... 9 cases, 0 death.

Wernich and Springfeld, 1897, pp. 153, 371: No cases of trichinosis officially known in Berlin and Charlottenburg for 1893, but Veröff., 1896, XX, p. 235, reports 9 cases for this year, while Ostertag (Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (12), September, p. 245, and 1899, p. 497) states that there were 9 cases during 1893 and 1894, due to pork which was brought into the city by private parties.

Braunsberg, R.-B. Königsberg .... [3 cases, 0 death].

Zeitschr. f. Fleisch- und Milchhyg., 1893, IV (2), November, p. 39: "Several" cases. Meat sold before the inspection was finished. Seller imprisoned one month. "In Braunsberg (Ost-Preussen) sind mehrere Personen nach Genuss von Schweinefleisch an Trichinosis erkrankt. Das Fleisch war verkauft worden, ehe die Untersuchung auf Trichinen beendet war. Die Verkäufer des Fleisches wurden daher zu je, 1 Monat Gefängniss verurtheilt." See Schillgehnen.

Frankfurt a. M., R.-B. Wiesbaden .... 2 cases, 0 death.

Veröff., 1893, p. 409: Hospitals. No details given.—Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (12), September, p. 245: Taken from Veröff. Details not given.

Genthin, Kr. Jerichow, R.-B. Magdeburg .... 3 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1893, III (7), April, p. 153: *Meat had been inspected and passed as free from trichinæ.* "In Genthin erkrankten nach der Deutschen Fleischer Ztg. mehrere Personen in Folge Genusses von Schweinefleisch, welches durch den Trichinenschauer untersucht und als trichinenfrei bezeichnet worden war. Die Nachuntersuchung de Fleisches ergab starken Trichinengehalt."

Königsberg (R.-B.) .... [10 cases, 1 death].

See [Braunsberg, 3]; Pillau, 4; Saalfeld, 3; Schillgehnen, 3 (1).

Magdeburg (R.-B.) .... [3 cases, 0 death].

See Genthin.

Merseburg (R.-B.) .... [1 case, 0 death].

See Zeitz.

Pillau, Kr. Fischhausen, R.-B. Königsberg .... 4 cases, 0 death.

Nath, 1897, p. 106: *The hog was inspected and passed as free from trichinæ.*—Zeitschr. f. Fleisch- und Milchhyg., 1893, III (7), April, p. 153: The entire family of a ship's captain. (Probably belongs here.)—Veröff., 1893, p. 112: Probably belongs here

Posen (R.-B.) .... 3 cases, 0 death.

Schmidt, 1897, p. 150: Says no cases were known for 1893, but Veröff., 1893, p. 317, records 3 cases, without details.

Saalfeld, Kr. Mohrungen, R.-B. Königsberg ...... 3 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1893, III (11), Aug., p. 229: Hog slaughtered by two butchers and divided before the meat was inspected.—Nath, 1897, p. 106: Meat had not been inspected.

Schillgehnen, Kr. Braunsberg, R. B. Königsberg, February ..
3 cases, 1 death.

Nath, 1897, p. 106: The meat was not inspected until after part of it had been eaten. Ostertag's reference to Braunsberg (see above) probably belongs here; probably also his reference (Zeitschr. f. Fleisch- und Milchhyg., 1893, III (7), April, p. 153) to "Schillgehnen."

Zeitz (Kr.), R. B. Merseburg .... 1 case, 0 death.

Wolff and Penkert, 1896, p. 131: Meat came from some other place. "Bei einem Arbeiter, der von auswärts bezogenes Schweinefleisch genossen hatte. Ein bei diesem Arbeiter am 2. Februar 1894 geschlachtetes Schwein fand sich bei der Untersuchung trichinös, so dass der Physikus vermuthet, dass das Schwein durch Verzehren von Kothabgängen des Arbeiters während seiner Krankheit infizirt worden ist."

Wiesbaden (R.-B.) .... [2 cases, 0 death].

Pfeiffer, 1897, p. 24: "Rotz und Trichinose kamen nicht zur Kenntniss der Aufsichtsbehörde." See, however, Frankfurt.

1894: 72 cases, 5 deaths.

Summary for the year.—In a total of 72 cases, 5 deaths, at least 40 cases, 1 death, *appear to have been due to meat which was inspected and passed as free from trichinæ.* Seven cases, 1 death, were due to pork of Russian origin. In Punitz, 3 cases, 1 death, were due to meat which was condemned but afterwards stolen and eaten. Of the remaining 22 cases, 2 deaths, the hog was traced in at least 4 cases, 2 deaths. The meat was traced in at least 5 cases, while in 13 cases the source of infection could not be established. In not a single case is it even alleged that the disease was due to American pork. All the cases were confined to the four Regierungs-Bezirke of Berlin, Bromberg, Königsberg, and Posen.

Official or other sanitary reports for the following Regierungs-Bezirke are not accessible to me: Arnsberg, Danzig, Erfurt, Magdeburg, Münster, Osnabrück.

No cases of trichinosis in man during 1894 were found in the official sanitary reports or elsewhere for the following Regierungs-Bezirke: Aachen (Schlegtendal, 1898, p. 92), Aurich (Quittel, 1896, p. 90), Berlin (Wernich and Springfeld, 1897, p. 371), Breslau (Alexander, 1898), Cassel (Weiss, 1896, p. 108), Coblenz (Wehmer, 1897), Coeslin (Grisar, 1896, pp. 82, 116), Cologne (Weyhöfer, 1897), Düsseldorf (Michelsen, 1897), Erfurt (Pippow, 1897, p. 82), Frankfurt (Frankfurt, 1896, p. 68), Gumbinnen (Passauer, 1896, p. 149), Hannover (Becker, 1897, pp. 75, 89), Hildesheim (Grun, 1897, p. 63), Liegnitz (Philipp, 1896, p. 111), Lüneburg (Nöller, 1897, p. 239), Marienwerder (Barnick, 1897, pp. 214, 215), Merseburg (Wolff and Penkert, 1896, p. 131), Minden (Rapmund, 1897, p. 95), Oppeln (Roth, 1896, p. 108), Potsdam (Kanzow, 1897), Schleswig-Holstein (Bockendahl, 1895, pp. 84, 85), Sigmaringen (Schmidt, 1897, p. 71), Stade (Rusak, 1897, p. 94), Stettin (Katerbau, 1896, p. 108), Stralsund (Haselberg, 1898), Trier (Schwartz, 1897, p. 62), Wiesbaden (Pfeiffer, 1897, p. 24).

Bromberg (R.-B.) .... [19 cases, 0 death].

See Filehne, 8; Gnesen, 1; and Putzig, 10.

Filehne, Kr. Filehne, R.-B. Bromberg .... 8 cases, 0 death.

Siedamgrotzky, 1896, pp. 51, 52: "Eine Fahrlässigkeit des Fleischers resp. Trichinenschauers konnte nicht nachgewiesen werden. Die gerichtliche Untersuchung ergab, dass der Fleischbeschauer sich mitunter die zu untersuchenden Fleischproben durch Lehrlinge, während er dabei war, hatte herausschneiden lassen. Er wurde daraufhin mit 9 Mark Strafe belegt." Fresh pork. *Accordingly the hog was inspected and passed as free from trichinæ.*

Gnesen, R.-B. Bromberg .... 1 case, 0 death.

Siedamgrotzky, 1896, p. 51: A butcher boy ate some pork before the hog was inspected. He was taken to the hospital, and the hog was found to be trichinous.

Gostyn, R.-B. Posen, February .... 3 cases, 2 deaths.

Schmidt, 1897, p. 150: The hog was known to be trichinous.

Grätz, R.-B. Posen, April .... 3 cases, 0 death.

Schmidt, 1897, p. 150: Raw ham.

Grätz, R.-B. Posen .... 3 cases, 0 death.

Schmidt, 1897, p. 150: Source could not be established. Three prisoners. [The supply of prison food is assuredly known.]

Königsberg (R.-B.) .... [2 cases, 0 death].

See Memel.

Memel, Kr. Memel, R.-B. Königsberg, December.. 2 cases, 0 death.

Veröff., 1895, p. 133: No details, except date.—Nath, 1897, p. 106: The meat had not been inspected.

Neustadt bei Pinne, and Linde, Kr. Neutomischel, R.-B. Posen, April .... 22 cases, 1 death.

Schmidt, 1897, p. 151: *The two hogs were inspected and passed as free from trichinæ.* The inspector, a druggist, was imprisoned four months.—Zeitschr. f. Fleisch- und Milchhyg., 1894, IV (9), June, p. 181: 30 cases.—Idem (10), July, p. 201: *The hog was inspected and passed as free from trichinæ.* Thirty cases, 1 death.—Veröff., 1896, XX (15), p. 289: 22 cases, 1 death. Two hogs.

Opatow, R.-B. Posen, December .... 7 cases, 1 death.

Schmidt, 1897, p. 151: From so-called "Polish sausage." The meat probably came from Russia. The hog was brought in on foot and not inspected.

Posen (R.-B.) .... [51 cases, 5 deaths].

Gostyn, 3 (2); Grätz, 3; Neustadt, 22 (1); Opatow, 7 (1); Posen, 3; Punitz, 3 (1); and Santomischel, 7.—Veröff., 1894, records cases as follows: p. 329, 27 cases; p. 314, 5 cases; p. 297, 4 cases; p. 245—Posen and Leipzig, several "Vereinzelte" cases.

Posen (Stadt), R.-B. Posen, June................ 3 cases, 0 death.

Schmidt, 1897, p. 151: No details given regarding inspection, for source of infection could not be established.

Punitz, Kr. Kröben, R.-B. Posen................ 3 cases, 1 death.

Zeitschr. f. Fleisch- und Milchhyg., 1894, IV (8), May, p. 161: The hog was inspected and condemned.—The Veterinarian, 1894, p. 874: After the hog was condemned, it was stolen and eaten (Review from Berl. T. W.).

Putzig, Kr. Filehne, R.-B. Bromberg, April...... 10 cases, 0 death.

Siedamgrotzky, 1896, p. 51: *The hog was inspected and passed as free from trichinæ.* The inspector had examined the hog carefully and for a long time. "Der Fleischbeschauer, ein älterer Mann, hatte das Schweinefleisch nach Aussage von Zeugen lange und genau untersucht und dann für trichinenfrei erklärt."—Zeitschr. f. Fleisch- und Milchhyg., 1894, IV (9), June, p. 181: "Putzig, R.-B. Danzig." *The hog was inspected and passed as free from trichinæ.* Nine cases. Probably Ostertag referred to R.-B. Bromberg.

Santomischel, Kr. Schroda, R.-B. Posen........ 7 cases, 0 death.

Schmidt, 1897, p. 151: 7 persons in 2 families. The source of the infection could not be established.

1895: 358 cases, 4 deaths.

Summary for the year.—No official sanitary reports for any of the Regierungs-Bezirke are accessible. From other sources (official imperial statistics, etc.) I have collected 358 cases, 4 deaths, of which at least 68 cases, 1 death, were due to meat which was inspected and passed as free from trichinæ; 242 cases, 1 death (Kelbra), were due to carelessness on the part of an inspector (only one of several hogs was inspected); 11 cases, 1 death, were due to meat smuggled away from the inspection. Twenty-one cases of another outbreak may also have been due to meat smuggled away from the inspection. Of the remaining 16 cases, 1 death, 6 occurred in a military kitchen; hence the source of the meat must have been known. One outbreak (3 cases, 1 death) was due to sausage; hence the source of infection was established, although the reports do not state the source of the sausage. In three records (Berlin, 1 case; Posen, 4 cases) no details whatever are given. In not a single case has it even been intimated that the sickness was due to American meats. These cases were confined to the following 8 Regierungs-Bezirke: Berlin, Breslau, Bromberg, Königsberg, Magdeburg, Merseburg, Posen, and Potsdam. The outbreak of 242 cases at Kelbra shows the shadow side of the German inspection system.

Berlin...................................... 1 case, 0 death.

Veröff., 1895, p. 448: No details.

Breslau (R.-B.) .... [5 cases, 0 death].
See Guhrau, 5.

Bromberg, (R.-B.).............................. [8 cases, 0 death].
See Gnesen, 8.

Dembin, Kr. Samter.
See Pakoslaw.

Gnesen, R.-B. Bromberg .... 8 cases, 0 death.
Zeitschr. f. Fleisch- und Milchhyg., 1895, V (9), p. 181: "In Gnesen sind 6 Soldaten des dort garisonierenden 49. Infanterie-Regiments an Trichinosis erkrankt. Sämtliche Patienten waren in die Küche kommandiert und haben geständlich von dem eingelieferten rohen Fleische gekostet."—Veröff., 1898, XXII (44), Nov. 2, p. 959: 8 cases. This reference probably belongs here.

Guhrau and Altguhrau, R.-B. Breslau, December.. 5 cases, 0 death.
Veröff., 1896, p. 493: *The hog (slaughtered November 28) was inspected and passed as free from trichinæ.* All cases recovered. The inspector who examined the meat without finding trichinæ, was tried but was acquitted on the ground that in a case of such light infection trichinæ might not be present in the samples which were taken according to regulations. "Der Krankheitsverlauf war bei Allen ein gunstiger. Der Fleischbeschauer G., welcher das Schwein untersucht hatte, ohne Trichinen zu finden, wurde in den gegen ihn wegen Fahrlässigkeit eingeleiten Strafverfahren freigesprochen, weil bei nicht erheblichen Zahl der Trichinen die Möglichkeit nicht ausgeschlossen erschien, dass in den vorschriftsmässig entnommenen Proben Trichinen nicht enthalten waren."

Kelbra, Altendorf, etc., R.-B. Merseburg, July.. 242 cases, 1 death.
Veröff., 1895, p. 696: 242 cases, 1 death. Especially Altendorf.—Penkert, 1895, Zeitschr. f. Medizinalbeamte, No. 17.—Zeitschr. f. Fleisch- und Milchhyg., 1895, V (12), September, p. 240: 250 to 300 cases, 1 death.—Idem, 1896, VI (5), p. 91: 242 cases. In the trial of the inspector it was shown that he had examined samples from only one hog, while several hogs were slaughtered. Furthermore, he had not taken this sample himself, as provided for in the regulations, but had taken a sample which was sent to him.—Ostertag, 1899, p. 506: 242 (1). Date given as 1897.

Klein-Quenstedt, Kr. Halberstadt, R.-B. Magdeburg, August.......
55 cases, 0 death.
Strassner, 1895, p. 503: "In dem gerichtsseitig von mir erforderten Gutachten trat ich für den Fleischbeschauer insofern ein, als ich bei der Erfahrung, dass selbst nach erfolgtem Auffinden von Trichinen trotz sorgfältigster Untersuchung in sehr zahlreichen Präparaten keine weiteren nachzuweisen sind, den Standpunkt von Riess (Trichinenkrankheit) einnahm, wonach die Trichinenschau keinen absolut sicheren Schutz garantirt, da Trichinen, wenn sie nur spärlich vorhanden sind, sogar von den tüchtigsten Schauern übersehen werden können. Diese Auffassung theilen auch andere Autoren (Schmidt-Mühlheim, Verkehr mit Fleisch- und Fleischwaaren, 1887; Jaeger, Schmarotzerkrankheiten; Dammer's Gesundheitspflege).

Der Fleischbeschauer hatte den polizeilichen Vorschriften gemäss die Proben selbst entnommen, und zwar nach seiner Angabe in Haselnussgrösse aus Zwerchfell, Zungenwurzel, Bauch- und Zwischenrippenmuskeln, hatte von jeder Probe 3 Quetschpräparate, jedes zu 30–40 Quadratzentimeter Glasfläche, gemacht und auf die Untersuchung eine Zeit von dreiviertel Stunden verwendet."—Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (5), pp. 91, 92: 55 cases. *The hog was inspected and passed as free from trichinæ.*—Perhaps the same as Idem, 1895, V (12), September, p. 241: 30 cases, 0 death.—Journ. Comp. Path. and Ther., 1896, p. 66.

Königsberg (R.-B.) .... **3 cases, 1 death.**

Veröff., 1895, p. 547: 1 death and 3 cases. No details.—Zeitschr. f. Fleisch und Milchhyg., 1895, V (12), September, p. 240: Cervelatwurst. Family, 1 death. "In Königsberg i. Pr. ferner sind die Mitglieder einer Kaufmannsfamilie nach Genuss von Cervelatwurst' an Trichinosis erkrankt. Die Frau des Hauses ist bereits gestorben, während ein Diener noch schwer darniederliegt."

Magdeburg (R.-B.) .... **[55 cases, 0 death].**

See Klein-Quenstedt, 55.

Merseburg (R.-B.) .... **[242 cases, 1 death].**

See Kelbra.

Nowawes bei Potsdam, R.-B. Potsdam .... **21 cases, 0 death.**

Zeitschr. f. Fleisch- und Milchhyg., 1895, VI (3), December, p. 59: "In Nowawes bei Potsdam ist eine Trichinenepidemie ausgebrochen mit 12 leichten und 3 schweren Erkrankungen. Die Erkrankungen folgten auf den Genuss von Blasenschinken, in dessen übrig gebliebenen Resten Trichinen nachgewiesen werden konnten."—Veröff., 1896, XX (4), p. 57: It was not positively determined whether the hog had been smuggled away from the inspection or not. "In Nowawes bei Potsdam sind in den letzten Tage des Oktober und der ersten Hälfte des November 1895 insgesammt 21 Personen an Trichinose erkrankt. Die Erkrankungen verliefen zum Theil unter schweren Erscheinungen, haben aber in keinem Falle einen tödlichen Ausgang genommen. In 17 Fällen wurde festgestellt dass die Erkrankten trichinenhaltigen Schinken gegessen hatten, der von einem bestimmten Flesicher gekauft war, jedoch wurde bisher noch nicht sicher ermittelt, ob das Schwein, von welchem der Schinken herrührte, der Trichinenschau entzogen worden war."

Opatow-Lenka, Kr. Kempen, R.-B. Posen .... **8 cases, 1 death.**

Zeitschr. f. Fleisch- und Milchhyg., 1895, V (5), Feb., p. 101: 5 cases.—Idem, (6), March, p. 122: 8 cases, 1 death. *The hog was evidently inspected and passed as free from trichinæ*, for the inspector was discharged. "Die Trichinosis in Opatow, bei welcher 8 Personen lebensgefährlich erkrankt sind—ein Patient ist bereits gestorben—hat zur Entlassung der Trichinenschaue zu Boleslawice und Wilhelmsbrück (Podsamtsche) geführt. Ausserdem sollen die weiteren schweren Uebelstände der Grenzfleischbeschau beseitigt werden."

Pakoslaw, Kr. Neutomischel, R.-B. Posen, December, 1895–January, 1896 .... **11 cases, 1 death.**

Veröff., 1896, XX (47), p. 887: Hog slaughtered December 19, 1895, and smuggled away from the inspection. One patient died January 26, 1896, in Pakoslaw. Parents, 8 brothers and sisters in Dembin, Kr. Samter, became sick, 3 of these very sick. "Das Schwein war der Trichinenschau entzogen worden." Shepherd's family.

Posen (R.-B.) .... **[23 cases, 2 deaths].**

See Opatow, 8 (1); Pakoslaw, 11 (1); and Posen, 4.

——— R.-B. Posen .... **4 cases, 0 death.**

Veröff., 1895, p. 335: 2 cases.—Idem, May, p. 351: 2 cases.

Potsdam (R.-B.) .... **[21 cases, 0 death].**

See Nowawes, 21.

1896: 74 cases, 6 deaths.

Summary for the year.—No official district reports are accessible for this year. As nearly as can be estimated at present, 74 cases, 6 deaths, occurred. Of these, 32 cases appear to have been due to meat which was inspected and passed as free from trichinæ; 8 further cases were due to meat which either was inspected or should have been; 2 cases were due to meat which was condemned and buried, but afterwards dug up and eaten; 7 cases, 1 death, appear to have been due to known sources of infection, but no details are given regarding the inspection; 22 cases, 4 deaths, were due to meat which is stated not to have been inspected; the remaining 3 cases, 1 death, as yet lack details. Not a single case has been attributed to American pork.

Angerburg, R.-B. Gumbinnen .... 4 cases, 1 death.

Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (8), May, p. 161: "In Angerburg ist ein Grundbesitzer nach dem Genusse trichinösen Schweinefleisches gestorben, drei weitere Personen liegen schwerkrank darnieder."

Bartenstein, Kr. Friedlang, R.-B. Königsberg .... 3 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (8), May, p. 161: Meat not inspected. "Bei Bartenstein erkrankten endlich mehrere Personen nach einer Schmauserei an Trichinosis. Das trichinöse Fleisch war nicht untersucht worden."

Dembina (Gut), Kr. Samter, R.-B. Posen .... [10 cases, 0 death].

Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (5), pp. 101, 102: Meat came from a hog which was smuggled away from the trichina inspection ("welches der Trichinenschau hinterzogen worden war"). Shepherd's family. Probably the same as Pakoslaw, 1895–1896.

Erfurt (R.-B.) .... [27 cases, 0 death].

See Treffurt, 27.

Görlitz [R.-B. Liegnitz ?] .... 3 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1896 (8), May, p. 161: Hog was slaughtered outside, and when brought to town was not inspected. "Die Fälle infolge Umgehung oder nachlässiger Ausübung der Trichinenschau häufen sich in bedauerlichem Masse. Neuerdings erkrankten mehrere Personen in Görlitz nach Genuss von Schweinefleisch, welches sich bei der Nachuntersuchung als stark trichinös erwies. Das schädliche Fleisch stammte von einem ausserhalb Görlitz geschlachteten Schwein und war bei der Einfuhr nach Görlitz nicht untersucht worden."

Gumbinnen (R.-B.) .... [20 cases, 5 deaths].

See Angerburg, 4 (1); Kl.-Stimort, 4 (1); and Schönbund, 12 (3).

Kl.-Cyste bei Culm, Kr. Kulm, R.-B. Marienwerder ....
8 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (7), April, p. 141: 6 hogs killed; only 2 inspected. "Trichinosis ist nach der 'Allgem. Fleisch. Zeitg.' zu Klein-Cyste im Kreise Kulm ausgebrochen. Ein Besitzer K. hatte von 6 Schweinen, die er geschlachtet, nur zwei untersuchen lassen und, da diese trichinenfrei befunden wurden, einen grossen Theil sämtlicher Tiere zu Wurst verarbeiten lassen. Nach dem Genuss der Wurst sind acht Personen, darunter K. selbst, sehr schwer an Trichinosis erkrankt. Das noch vorhandene Fleisch sowie die Wurst sind amtlich vernichtet worden."

Kl.-Cyste bei Culm, R.-B. Marienwerder.......... 3 cases, 1 death.

Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (9), June, p. 181: "In Klein-Cyste bei Culm sind 3 Personen an Trichinosis erkrankt. Eine derselben ist der Krankheit erlegen."

Kl.-Stimort, Kr. Angerburg, R.-B. Gumbinnen, May........ 4 cases, 1 death.

Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (10), July, p. 205: Hog not inspected, but afterwards found trichinous. "In der Familie des Instmanns Aug. Puschke in Kl. Stimort, Kr. Angerburg, wurde das rohe, zubereitete Fleisch eines geschlachteten, auf Trichinen nicht untersuchten Schweines genossen. Es erkrankten darauf der Mann, die Frau und die beiden jüngsten Kinder an Trichinose. Die Frau ist am 15. Mai gestorben, der Mann und die beiden jüngsten Kinder sind z. Z. noch schwer erkrankt. Die beiden ältesten Kinder hatten nur gekochtes Fleisch genossen und blieben gesund. Das Fleisch des geschlachteten Schweines ist nachträglich untersucht und stark mit Trichinen durchsetzt gefunden worden."

Königsberg (R.-B.) .... [3 cases, 0 death].

See Bartenstein, 3.

Lissa (Landgericht) i. Pr., R.-B. Posen .... 2 cases, 0 death.

Veröff., 1899, p. 320*: On December 31, 1895, Se. slaughtered a hog. S. afterwards found the meat trichinous. Before this the butcher K., the assistants Sp. and C., and servant Wo., ate of meat. Hog's carcass was buried; Wo. dug it up the same day, ate some of the meat and gave a ham to Mak.; the latter gave some meat to R., stating that it was trichinous; also ate some himself and gave some to his child; R. gave some of the meat to J. R., who ate it without cooking it, and gave some to her child. Both J. R. and her child were taken sick.

Liegnitz (R.-B.) .... [3 cases, 0 death].

See Görlitz, 3.

Marienwerder (R.-B.) .... [14 cases, 1 death].

See Kl.-Cyste, 3 (1), 8; and T. and W. b. Thorn, 3.—Veröff., 1896, XX (11), March, p. 201: No details; 6 cases.

Neutomischel, R.-B. Posen........................ 5 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (7), April, p. 142: *Meat had been inspected and passed as free from trichinæ.* "In Neutomischel erkrankten nach derselben Quelle [Allg. Fl. Z.] 5 Personen nach dem Genuss geräucherten Fleisches und geräucherter Wurst an Trichinosis. Die in dem Fleische bei der Nachuntersuchung festgestellten Trichinen sind von dem zuständigen Trichinenschauer übersehen worden."

Pakoslaw, Kr. Neutomischel, R.-B. Posen ...... [11 cases, 1 death].

See 1895.

Posen (R.-B.)..................................... [7 cases, 0 death].

See [Dembina, 10]; Lissa, 2; Neutomischel, 5; [Pakoslaw, 11 (1)]; and [Posen, 5].

Posen (R.-B.)..................................... [5 cases, 0 death].

Veröff., 1896, XX (18), March, p. 217: No details given. Probably refers to Neutomischel.

Schönbund, Kr. Angerburg, R.-B. Gumbinnen.. 12 cases, 3 deaths.

Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (9), June, p. 181: Hog slaughtered at home and not inspected. "Im Dorfe Schönbund, Kreis Angerburg, O. Pr., ist eine Trichinenepidemie ausgebrochen, welcher bereits 3 Personen zum Opfer gefallen sind, während 2 weitere noch sehr schwer darniederliegen. Im ganzen erkrankten 12 Personen. Die Erkrankungen folgten auf den Genuss von Rauchwurst, welche aus dem Fleisch eines hausgeschlachteten und deshalb nicht untersuchten Schweines hergestellt worden war. Diese traurige Erfahrung stellt die Unzulänglichkeit der fakultativen Trichinenschau ins rechte Licht und heischt gebieterisch die Einführung der allgemeinen obligatorischen Untersuchung der Schweine auf Trichinen, zumal da es sich bereits um die 4. Trichinenepidemie im Kreise Angerburg handelt."

Treffurt bei Urfurt, Kr. Mühlhausen, R.-B. Erfurt, January.. 27 cases, 0 death.

Veröff., 1896, p. 257: December, 1895–January, 1896; more than 27 cases, 0 death. "In Treffurt, Kreis Mühlhausen, erkrankten im December 1895 und Januar 1896 zahlreiche Personen, von denen 27 in ärtzliche Behandlung traten, nach dem Genuss von Theils roh als Hackfleisch, theils schwach angebraten als Bratwurst zubereitetem Schweinefleisch. Unter den Erkrankten befand sich der Eigenthümer des Schweines, von dem das Fleisch herrührte. Es wurde festgestellt, dass die nach dem Schlachten des Schweines ordnungsgemäss herbeigeführte Trichinenschau von dem Fleischbeschauer R. mit grosser Nachlässigkeit vorgenommen war; R. hatte nicht die vorgeschriebenen 8, sondern nur 4, vielleicht sogar nur 2 Fleischproben entnommen und nach der Untersuchung das Schwein für trichinenfrei erklärt. Dagegen wurden später von einem anderen Fleishbeschauer und dem Kreisphysikus in Fleischtheilen von dem verdächtigen Schweine Trichinen gefunden. Infolgedessen ist der Fleischbeschauer R. seines Amtes enthoben und zur strafrechtlichen Verantwortung gezogen worden. Die Erkrankten find inzwischen sämmtlich wieder genesen."—Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (5), 8, p. 101: 18 cases. Hog slaughtered by a "private man." *Inspected and passed as free from trichinæ.*

T. and W., Landgericht Thorn, R.-B. Marienwerder........ 3 cases, 0 death.

Veröff., 1899, XXIII, p. 319:* December, 1895, workman L. slaughtered a hog for his sick father in Wi.; W. in Wi. aided him; W. cut the meat and gave pieces to L., who sold some; the father of L. took the money; "several" persons were taken sick with trichinosis; meat was afterwards inspected and found heavily infested; L. was imprisoned a week.

1897: 141 cases, 6 deaths.

Summary for the year.—None of the official Bezirk health reports is accessible. As nearly as can be figured out from present reports, about 141 cases, 6 deaths, occurred. These figures may need correction after fuller details are published. Of the 141 cases, 6 deaths, 101 cases, 2 deaths, appear to have been due to meat which was inspected, at least stamped as free from trichinæ; 3 cases were due to meat which had been condemned and buried, but was dug up and eaten; 25 cases, 2 deaths, were due to meat which is definitely stated not to have been inspected (source was known); 5 cases, 2 deaths, were due to meat the source of which was known, but no details are given regarding inspection; regarding the remaining 7 cases, no details are as yet accessible to me. Not a single case is attributed to American pork.

"*Reformbedürftigkeit der Trichinenschau.*—In letzter Zeit haben sich in bedenklicher Weise Fälle von Trichinosis gehäuft, welche nach dem Genusse angeblich untersuchten Fleisches auftraten. Diese Vorkommnisse, durch welche frühere lediglich bestätigt werden, erfordern dringend eine Reform des heutigen Trichinenschauwesens. Dieselbe hat zu bestehen: 1, in der allgemeinen Vorschrift, dass nur die Trichinen-Lieblingssitze erster Ordnung zur Probeentnahme verwendet und dass die Untersuchung der Proben in ganz bestimmt vorgeschriebener, zweckmässiger Weise ausgeführt wird. 2, in der Anordnung einer regelmässigen Kontrolle und periodischer Lehrversammlungen für die ländlichen Trichinenschauer nach dem Vorgange in Coburg-Gotha (Georges). In den Versammlungen würden die Trichinenschauer fortgebildet und stets wieder von neuem auf die hohe Verantwortlichkeit ihres Berufes aufmerksam gemacht werden.

"Trichinenepidemie, welche sich in den letzten Wochen ereigneten, werden gemeldet aus Bromberg, Wohlau und Leubus. In letzterem Dorfe hat der Sohn des Trichinenschauers unbefugter Weise die Untersuchung des schädlichen Fleisches ausgeführt und die in demselben enthaltenen Trichinen übersehen."—Zeitschr. f. Fleisch- und Milchhyg., 1897, VIII (6), March, pp. 125, 126.

Altthorn, R.-B. Marienwerder .... 10 ? cases, 0 ? death.

Zeitschr. f. Fleisch- und Milchhyg., 1897, VII (5), February, p. 104: Hog not examined. "In Altthorn erkrankten die Theilnehmer an einem Schlachtfeste nach dem Genuss von Wellfleisch und frischer Wurst. Das Fleisch des Schweines war leichtfertiger Weise nicht auf Trichinen untersucht worden. Die nachträgliche Untersuchung ergab die Anwesenheit zahlreicher Trichinen." Number of cases not given.

Breslau (R.-B.) .... [9 cases, 0 death].

See Grebline, 6; Leubus, 3.

Bromberg (R.-B. or Stadt?) .... 3 ? cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1897, VII (6), March, p. 126: An epidemic. Number of cases not given. No details.

Frankfurt a. M., R.-B. Wiesbaden .... 1 case, 0 death.

Veröff., 1897, XXI (48), 1 December, p. 973: In hospital. No details.

Görlitz [R.-B. (?) Liegnitz?] .... 1 case, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1897, IV (5), February, p. 104: *Hog was inspected and passed as free from trichinæ*, or at least it was so stamped. "In Görlitz erkrankte eine Köchin nach dem Genuss von Schweinefleisch an schwerer Trichinosis. Die angestellten Ermittelungen ergaben, dass das Schwein, von welchem das Fleisch stammte, den Stempel über eine in Löschnitz angeblich erfolgte Untersuchung trug. Diese Untersuchung kann aber, wenn sie überhaupt stattfand, nur leichtfertig ausgeführt worden sein; denn bei der Nachuntersuchung des Fleisches liessen sich Trichinen leicht ermitteln."

Grebline bei Militsch, R.-B. Breslau, January ..... 6 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1897, VII (5), February, p. 104: *Hog inspected and passed as free from trichinæ.* "In Grebline b. Militsch liegt ein Freisteller mit 5 Kindern darnieder. Der Freisteller hatte am 20. December 1896 ein Schwein geschlachtet, welches vom Trichinenschauer als trichinenfrei bezeichnet wurde. Die Familie ass bis zum 4. Januar nur gekochtes Fleisch und blieb daher ohne nachteilige Folgen; dagegen stellten sich am 8. Januar heftige Erkrankungen ein, nach dem der Freisteller mit seinen Kindern von dem geräucherten Fleisch gegessen hatte."

Königsberg (R.-B.) .... 20 cases, 4 deaths.

See Koschlau, 15 (2); Soldau, 5 (2).

Koschlau and Abbau, Kr. Niedenberg (R.-B. Königsberg?), August. . . 15 cases, 2 deaths.

Veröff., 1898, XXII (13), 30 March, p. 265: Hog not inspected. "Am 21. August 1897 wurde von dem prakt. Arzte P. auf dem Bahnhofe zu Koschlau bei 5 Personen eine schwere und bei 7 Personen eine leichte Erkrankung an Trichinose konstatirt. Tags vorher war der Fleischer T. in Abbau Meischlitz, Kreis Neidenburg, anscheinend an Ruhr gestorben und ein Sohn desselben erkrankt. Durch weitere ärztltche Untersuchung wurde festgestellt dass auch die bei T. vorgekommenen Erkrankungsfälle auf Trichinose zurückzuführen seien. Der Fleischer T. hatte ca. 14 Tage vorher ein Schwein geschlachtet, welches stark mit Trichinen behaftet war, und das Fleisch ohne vorherige Untersuchung an Bewohner von Abbau-Meischlitz und den Bahnhofsrestaurateur K. in Koschlau verkauft, der dasselbe zu Cervelatwurst verarbeitete. Infolge Genusses dieses trichinenhaltigen Fleisches bezw. der Wurst sind im Ganzen 15 Erkrankungsfälle an Trichinose eingetreten, wovon diejenigen des Fleischers T. und eines bei dem Bahnhofsrestaurateur K. bediensteten Mädchens tödlichen Ausgang hatten."—Zeitschr. f. Fleisch- und Milchhyg., 1898, VIII (9), June, pp. 178, 179.

Leubus, Kr. Wohlau, R.-B. Breslau . . . . 3? cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1897, VII (6), p. 126: Number of cases not given. *Hog inspected and passed as free from trichinæ* by son of inspector. * * * "Hat der Sohn des Trichinenschauers unbefugter Weise die Untersuchung des schädlichen Fleisches ausgeführt und die in demselben enthaltenen Trichinen übersehen."

Liegnitz (R.-B.) . . . . [1 case, 0 death].

See Görlitz, 1.

Magdeburg (R.-B.) . . . . [3 cases, 0 death].

See Reesdorf.

Marienwerder (R.-B.) . . . . [98 cases, 2 deaths].

See Altthorn, 10; Mocker, 73 (2); Thorn, 15.

Mocker and Thorn, R.-B. Marienwerder, February–March . . . 73 cases, 2 deaths.

Veröff., 1897, XXX (29), July 21, p. 589: "In Mocker bei Thorn, sowie in Thorn selbst erkrankten im Februar und März 1897 zahlreiche Personen, welche Schweinefleischwaaren aus einem Schlachtergeschäft in Mocker bezogen und genossen hatten; ausserdem ereignete sich 1 Einzelfall in Dresden, welcher auf den Genuss von Wurst gleicher Herkunft zurückzuführen war. Im Ganzen sind 74 Fälle bekannt geworden, darunter 55 in Mocker und 18 in Thorn, doch ist die Zahl der thatsächlich Erkrankten wahrscheinlich grösser gewesen. Gestorben ist ein Schlachterlehrling, der vermutlich eine grössere Menge rohes Wurstfleisch zu sich genommen hatte und eine andere Person in Mocker. Von den 74 Erkrankungen waren 36 Einzelfälle und 38 Gruppenerkrankungen, davon 32 in 13 Familien und 6 in einer Thorner Speisewirthschaft. In dem nach Feststellung der Krankheit ungesäumt beschlagnahmten Fleischvorräthen des betr. Schlachters wurden lebende Trichinen gefunden, ebenso in den Muskeln des verstorbenen Lehrlings. Der vorläufig seines Amtes enthobene Fleischbeschauer und der Besitzer des Schlachtergeschäftes sind zur strafrechtlichen Verantwortung gezogen worden. Die von Seiten der Behörden angestellten Nachforschung nach der Herkunft des (oder der) trichinösen Schweines haben zu keinem sichern Ergebniss geführt; wahrscheinlich war dasselbe aus dem Kreise Briesen bezogen worden."—Zeitschr. f. Fleisch-

und Milchhyg., 1897, VII (7), April, p. 145: 40 cases. *The hog was inspected and passed as free from trichinæ.* "Dem Vernehmen nach soll grobe Fahrlässigkeit des Trichinenschauers die Schuld an dem bedauernswerten Vorfall tragen."—Idem (11), p. 225.

Oppeln (R.-B.) .... [3 cases, 0 death].

See Wohlau, 3.

Posen (R.-B.) .... [3 cases, 0 death].

See Zegrze, 3.

Reesdorf [= Deesdorf ? R.-B. Magdeburg] .... 3 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1898, VIII (4), January, p. 80: *Meat said to have been inspected and passed as free from trichinæ.* "In Reesdorf erkrankte die aus drei Köpfen bestehende Familie eines Gastwirts nach dem Genusse angeblich untersuchten Schweinefleisches an Trichinosis. Bei der Nachuntersuchung der Fleischreste wurden zahlreiche Trichinen festgestellt." Reesdorf could not be found. Could this refer to Deesdorf, R.-B. Magdeburg?

Soldau, Kr. Neidenburg, R.-B. Königsberg .... More than 5 cases, 2 deaths.

Zeitschr. f. Fleisch- und Milchhyg., 1897, VII (12), September, p. 245: Source known. Not definitely stated whether the meat had been inspected. "In Soldau i. Ostpr. erkrankte die aus 5 Personen bestehende Familie des Fleischers T. plötzlich an Trichinosis. T. ist am 3. Tage gestorben. Ausserdem sollen ein zweiter Todesfall und weitere Erkrankungen in anderen Familien eingetreten sein. Von T. verkaufte Wurst wurde bei der Nachuntersuchung stark trichinenhaltig befunden."

Thorn, R.-B. Marienwerder .... 15 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1897, VII (6), April, p. 126: *Meat inspected and passed as free from trichinæ.* "Von der Strafkammer zu Thorn ist der Trichinenschauer V. wegen fahrlässiger Körperverletzung zu 2 Monaten Gefängniss verurtheilt worden. V. hatte das Fleisch eines stark trichinösen Schweines, nach dessen Genuss 15 Personen erkrankten, für trichinenfrei erklärt." The bibliographic references would indicate that this is not the same outbreak as Mocker-Thorn.

Wiesbaden (R.-B.) .... [1 case, 0 death].

See Frankfurt 1.

Wohlau (Dorf and Kreis), R.-B. Oppeln .... 3? cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1897, VII (6), March, p. 126: No details as to number of cases or source of infection are given. "An epidemic."

Zegrze, R.-B. Posen .... 3 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1897, VII (5), February, p. 104: Hog was condemned and buried; was afterwards dug up by the owner and eaten. A "family." "Nach der Allg. Fleisch.-Ztg., ist in Zegrze in Posen eine Familie an Trichinosis erkrankt. Die Veranlassung war der Genuss des Fleisches von einem trichinösen Schwein, welches von der Behörde vergraben, vom Bezitzer aber wieder ausgegraben worden ist."

1898: 44 cases, 0 death.

Summary for the year.—No district health reports are accessible. As nearly as can be estimated from the data at hand, about 44 cases, 0 death, occurred. It appears also that 37 of these cases were due to meat which had passed inspection as free from trichinæ; regarding 2 cases, no details are given; regarding the remaining 5 cases, no details are given, and their occurrence appears to be somewhat in doubt.

Altona, R.-B. Schleswig-Holstein ....

Veröff., 1899, XXIII (23), 7 June, p. 466: Altona hospital; 2 cases.—Idem (24), 14 June, p. 490: Report corrected. "Die auf S. 466 enthaltene Mittheilung, nach welcher in Altona (Krankenhaus) 2 Erkrankungen an Trichinose vorgekommen sind, beruht, wie sich nachträglich herausgestellt hat, auf einer irrthümlichen Angabe in der betreffenden Krankenhaus-Nachweise."

Hannover (Stadt or R.-B.?) .... 3 cases, 0 death.

Veröff., 1898, XXII (25), 22 June, p. 501: No details. Referring to these cases, it may be remarked that 3 Hannover officials stated to me in 1899 that no cases of trichinosis had occurred in Hannover in 1898. Two of them stated that, if this reference in Veröff. referred to the city of Hannover, some mistake must have occurred, as they would surely have known of any cases reported.

Königsberg (R.-B.).............................. [4 cases, 0 death].

See Mohrungen, 3; Wilmsdorf, 1.

Kulm, R.-B. Marienwerder........................ 34 cases, 0 death.

Veröff., 1898, XXII (30), July 27, p. 597: 8 cases.—Idem (28), July 13, p. 565: 14 cases.—Idem (29), July 20, p. 581: 12 cases.—Allg. Fl. Ztg., 1898 (56), July 14, p. 2: 34 cases.—Sudd. Fl. Z., XV (29), July 17, p. 3; 50 cases.—Der Trichinenschauer, 1898, X (14), July 15, p. 109: * * * "Wie Fleischermeister Kobs erklärt, ist das Schwein von dem das Fleisch Herrührte, im Schlachthause geschlachtet und untersucht worden." Fifty cases.—Veröff., 1898, XXII (38), July, p. 790: "Vom 28. Juni bis 6. Juli d. J. erkrankten in rascher Aufeinanderfolge 33 Personen in der Stadt Kulm und die Wirthschafterin eines etwa 10 Km. entfernten Gutes. Bei einem 19 jährigen Arbeiter, welchem am 26. Juni eine Quetschwunde im Gesicht beigebracht worden war, vermochte der Kreisphysikus am 5. Juli in einem linsengrossen, der Wunde entnommenen Muskelstückchen 3 Trichinen nachzuweisen. Von den 34 Erkrankungen betrafen 13 Männer, 20 Frauen oder erwachsene Mädchen, 1 einen 12 jährigen Knaben; 12 waren Einzelfälle, die übrigen 22 Gruppenerkrankungen, die in 5 Familien und in der Arbeiterschaft (8 Fälle) einer Reifenfabrik vorkamen. Sämmtliche Erkrankte sind genesen. Alle hatten im letzten Drittel des Juni Schweinefleisch in verschiedener Form, als Warschauer Wurst, Bratwurst, Klopsfleisch, Hackfleisch, Karbonade, aus dem Geschäft des Fleischers K. genossen, welches höchst wahrscheinlich von einem Schweine stammte, das am 21. Juni in dem städtischen Schlachthause zu Kulm geschlachtet worden war. Es konnte durch die eingeleitete Untersuchung nicht festgestellt werden, welcher der 3 Trichinenschauer das Schwein am 21. Juni untersucht und als gesund erklärt hatte." Thus it appears that *the hog was inspected and passed as free from trichinæ.*

Marienwerder (R.-B.) .... [34 cases, 0 death].

See Kulm.

Mohrungen, R.-B. Königsberg.................. 3 ? cases, 0 death.

Der Trichinenschauer, 1898, X (14), July 15, p. 110: Hog said to have been

Erkrankung waren davon noch einige Fleischtheile vorhanden, die nach genauer Untersuchung trichinenfrei befunden worden sind.—Die Untersuchung ist eingeleitet.—Zeitschr. f. Fleisch- und Milchhyg., 1898, VIII (10), July, p. 198: Number of cases not given. Mentions only Mohrungen.

Posen (R.-B.) .... 2 cases, 0 death.

Veröff., 1898, XXII (50), December 14, p. 1093: 2 cases. No details.—Der Trichinenschauer, 1899, IV (1), January, p. 7.

Stettin (Stadt or R.-B. ?) .... 1 case, 0 death.

Veröff., 1898, XXII (41), October 12, p. 881: No details. In connection with this case it may be mentioned that, according to a statement by the Stettin Polizei-Praesidium in 1899, no cases of trichinosis have been officially known in Stettin for a number of years. "Hierorts sind schon seit einer Reihe von Jahren Fälle von Erkrankungen an Trichinosis amtlich nicht bekannt geworden."

Wilmsdorf, R.-B. Königsberg .... 1 case, 0 death.

Der Trichinenschauer, 1898, X (14), July 15, p. 110: *Hog inspected and passed as free from trichinæ.* See Mohrungen.

1899.

Summary for the year.—Owing to the order mentioned on page 21, it is necessary for me to reject all Prussian sanitary records since 1899. A serious consideration of Prussian sanitary statistics following this official suppression of information would be a travesty on public hygiene. The following cases of trichinosis have been collected, and will be cited here in order to make the series of years complete, but they will be rejected in toto from the summaries.

It may here be remarked that a short time before the order in question was issued a certain Prussian official, when arguing the subject of trichinosis, informed me that *since I had brought into discussion the local statistics, "which Prussia had published in all good faith," it would perhaps be necessary to suppress these more complete reports in the future.*

Berlin .... 1 case, 0 death.

Veröff., 1899, XXIII (43), October 25, p. 922: Hospital. No details.

Hannover (Stadt or R.-B. ?) .... 1 case, 0 death.

Veröff., 1899, XXIII (25), June 21, p. 506: Hospital. No details.—See remarks under Hannover, 1898.

Königsdorf bei Mohrungen, R.-B. Königsberg, January ....
4 cases, 1 death.

Der Fleischbeschauer, 1899, IV (3), March 1, p. 36: "Nach dem Genusse von trichinösem Schweinefleisch ist in Königsdorf bei Mohrungen ein Tischler verstorben; seine Frau und zwei Söhne liegen noch schwer krank darnieder. Das Schwein von dem das Fleisch stammte *war bei der Untersuchung für trichinenfrei erklärt worden;* der Rest des Schweines ist jetzt hier nochmals untersucht und stark trichinös befunden worden."—Deutsche Fleisch-Ztg., 1899, June 17: "Die hiesige [Braunsberg] Strafkammer verurtheilte den Fleischbeschauer Lehwald aus Königsdorf wegen fahrlässiger Tödtung zu 15 Monaten Gefängniss. Der Angeklagte hatte Schweine des Tischlers Werner auf Trichinen untersucht und sie für

Trichinenfrei erklärt, während sie thatsächlich stark trichinenhaltig waren. Nach dem Genuss des Fleisches erkrankten Werner, seine Frau und zwei Söhne an Trichinose; Werner starb."—Central-Fl.-Ztg., 1899, June 17: "Wegen fahrlässiger Körperverletzung und Tödtung hatte sich kürzlich der Besitzer und Fleischbeschauer Friedrich Lehwald aus Königsdorf, Kreis Mohrungen, vor der hiesigen Strafkammer zu verantworten. Der Vorgang ist folgender: 'Im Dezember v. J. hatte Lehwald von dem Tischlermeister Werner aus Königsdorf von einem von diesem geschlachteten Schweine einzelne Stücke Fleisch entnommen, um sie im Auftrage des Werner auf Trichinen zu untersuchen. Beide hatten, wie der angeklagte angiebt, abgemacht, dass er dem Werner den Ausfall der Untersuchung nicht mittheilen sollte, wenn das Fleisch nicht trichinenhaltig sei. Lehwald will bei der Untersuchung in der That keine Trichinen gefunden haben, und da er dem Werner keine Mittheilung machte, wurde von diesem und seiner Familie das Schweinefleisch gegessen. Bald nach dem Genuss erkrankten sämmtliche Familienmitglieder, und der Tischlermeister Werner selbst starb in der Nacht zum 25. Januar d. J. Die Section hat ergeben, dass er an Trichinosis zu Grunde gegangen ist. Die Schuld an seinem Tode und der Erkrankung der übrigen Familienmitglieder trägt der Angeklagte, welcher nachlässiger Weise das Schweinefleisch offenbar überhaupt nicht untersucht hat. Bald darauf wurde das Fleisch von einem anderen Fleischbeschauer und auch durch den Kreisthierarzt untersucht und Trichinen in grosser Menge gefunden, so dass der Angeklagte bei Anwendung auch nur der geringsten Aufmerksamkeit das Vorhandensein der Trichinen hätte erkennen müssen. Auch in den von der Leiche entnommenen Fleischtheilen haben ärztliche Sachverständige Trichinen gefunden und dadurch zweifellos festgestellt, dass die Trichinen durch den Genuss des Schweinefleisches auf den Werner übertragen wurden. Der Angeklagte wurde zu einer Gefängnisstrafe von einem Jahr und drei Monaten verurtheilt.'"—Idem, June 21: "Die Strafkammer verurtheilte den Fleischbeschauer Lehwald aus Königsdorf, der durch nachlässige Untersuchung des Schweinefleisches die Erkrankung der Tischlerfamilie Werner und den Tod des Tischlers Werner in Folge Trichinosis verursachte, wegen fahrlässiger Tödtung und Körperverletzung zu 1 Jahr 3 Monaten Gefängniss."—Der Fleischbeschauer, IV (7), July 1: "Uebersehens von Trichinen. Der Fleischbeschauer Lehwald in Königsdorf bei Braunsberg hatte einige Tage vor Weihnachten 1898 ein Schwein des Tischlers W. zu untersuchen, wobei er Trichinen nicht gefunden haben will. Er hat aber auch das Schwein nicht als trichinenfrei abgestempelt, vielmehr mit dem W. vereinbart wenn er nicht wiederkäme sei alles in Ordnung. Anfangs Januar brach in der Familie W. nun Trichinose aus, woran W. am 25. Januar starb. Sowohl die Leichensektion wie die Untersuchung des noch vorhandenen Fleisches ergab das Vorhandensein von Trichinen. Nach dem Gutachten des Kreisthierarztes hätte L. bei nur geringer Aufmerksamkeit die Trichinen finden müssen, da das Schwein in bedeutendem Grade trichinös war. Der Gerichtshof verurtheilte ihn zu einem Jahr drei Monaten Gefängniss."—Zeitschr. f. Fleisch- und Milchhyg., 1899, IX (8), May, p. 159: 4 cases, 1 death, in Königsberg. Home-slaughtered hog. Possibly this reference belongs here.

Magdeburg (R.-B.) Magdeburg .... 1 case, 0 death.

Veröff., 1899, XXIII (24), June 14, p. 490: In hospital. No details.

Magdeburg (R.-B.) Magdeburg .... 3 cases, 0 death.

Veröff., 1899, XXIII (39), September 27, p. 813: In hospital. No details.

Marienwerder (R.-B.) .... 3 cases, 0 death.

Veröff., 1899, XXIII (32), August 9, p. 653: No details.

Marienwerder (R.-B.) .... 2 cases, 0 death.

Veröff., 1899, XXIII (33), August 16, p. 681: No details.

Melno, Kr. Graudenz [R.-B. Marienwerder?] ...... 1 case, 0 death.

Der Fleischbeschauer, 1899, IV (9), September 1, p. 116: "Der Sohn des Waldwärters D. aus Melno, der bei dem Fleischermeister P. in Podrzewie Prov. Posen das Fleischerhandwerk erlernt, besuchte seinen Vater und erkrankte sogleich. * * * Der Arzt stellte Erkrankung an Trichinosis fest. Der Erkrankte erzählt, er habe bei seinem Meister Bratwurst gemacht und dabei rohes Schweinefleisch gegessen."

Mittenwalde [R.-B. Bromberg, or Potsdam, or Breslau ?].... 11 cases, 1 death.

Zeitschr. f. Fleisch- und Milchhyg., 1899, X (3), p. 60: "In Mittenwalde in Schlesien ist eine Trichinenepidemie ausgebrochen, der bereits eine Person zum Opfer gefallen ist."

Mittelwalde .... [11 cases, 0 death].

Der Fleischbeschauer, 1899, IV (12), December 1, p. 150: "Keine Trichinosis in Mittelwalde. Wie uns von zuständiger Seite mitgeteilt wird, sind in Mittelwalde i. Schles. zwar 11 Personen an einer der Trichinose ähnlichen Krankheit erkrankt gewesen, doch haben bei den von der verstorbenen Fleischermeisters-Ehefrau Fichtner entnommenen Fleischstückchen Trichinen nicht festgestellt werden können. Hiernach hat es sich wohl um eine der Trichinose ähnliche Krankheit gehandelt, aber nicht um Trichinose selbst."

PRUSSIAN CASES (1881-1898) ARRANGED BY REGIERUNGS-BEZIRKE.

In order to determine the geographic distribution of the outbreaks in Prussia, the cases are here arranged according to Regierungs-Bezirke, and in order to judge whether the entire absence of the disease in certain districts or the absence in certain other districts during given years may be attributed exclusively to the microscopic inspection, quotations are made from official reports relative to the efficiency of the inspectors, condition of their instruments, etc.

It should be borne in mind that the individual ideas of the present writer are not involved in these quotations. On the contrary, this is a compilation of European—chiefly German—evidence.

It will be noticed that no cases have been gathered for the years in question for the following nine districts: Aachen, Aurich, Coblenz, Lüneburg, Minden, Osnabrück, Sigmaringen, Stade, and Trier. The other districts may be arranged, with reference to their number of cases and deaths, as follows: Münster (1), Hannover (3), Wiesbaden (3), Stralsund (4, 1), Stettin (18), Danzig (20, 3), Schleswig-Holstein (24,1), Oppeln (25), Coeslin (46), Liegnitz (65, 8), Arnsberg (69, 1), Düsseldorf (84, 3), Berlin (87, 10), Gumbinnen (103, 8), Breslau (108, 14), Hildesheim (112, 4), Erfurt (121, 1), Cologne (127), Frankfurt a. O. (137, 14), Cassel (150, 2), Potsdam (158, 1), Posen (219, 21), Bromberg (269, 5), Königsberg (313, 33), Marienwerder (333, 15), Magdeburg (572, 16), Merseburg (651, 14).

Aachen .... 0 case, 0 death.

No official sanitary reports are accessible for the years 1881, 1882, 1895–1898, and no cases have been found recorded for the Bezirk for the years 1880–1898. Trost (1883, pp. 42, 43; 1887, pp. 49, 56) states that no cases have ever been known in the district.

This freedom from the disease can not, however, be attributed to the microscopic inspection; in fact, the consensus of opinion in this district has been against the introduction of the system, as seen from the following extracts from official sanitary reports:

"Die Einführung der obligatorischen Trichinenschau ist wiederholt Gegenstand der eingehendsten Erörterungen der Königlichen Regierung gewesen. Im Jahre 1875 wurde die Frage der Einführung der obligatorischen Untersuchung des Schweinefleisches auf Trichinen. sämmtlichen Landräthen des Bezirks zur gutachtlichen Aeusserung vorgelegt und haben dieselben sich ohne Ausnahme dagegen erklärt. Im Jahre 1879 war die allgemeine Fleischbeschau wiederum Gegenstand sorgfältiger Berathung der Königlichen Regierung. Auch jetzt wurde von der obligatorischen Fleischuntersuchung Abstand genommen, weil die Gründe welche früher für die Nichteinführung derselben massgebend waren, noch heute fortbestehen. Es ist im hiesigen Bezirke noch kein Fall von Trichinose vorgekommen. Geeignete Personen für die Untersuchung, namentlich in der Eifel wie überhaupt in den ländlichen Ortschaften sind nicht vorhanden und wohl kaum zu bekommen. Eine mangelhafte Untersuchung schadet mehr als sie nutzt. * * * Das Schweinefleisch wird im hiesigen Bezirk fast ausschliesslich im gekochten Zustande genossen."—*Trost, 1883, pp. 42, 43.*

Four years later Trost (1887, pp. 49, 56) states that no cases of trichinosis have ever been known in this Regierungs-Bezirk, and that the introduction of the obligatory inspection for hogs slaughtered here has not been found necessary. Referring to the subject again, after another four years, Trost (1891, p. 106) remarks as follows:

"Wie in den vorigen, so ist auch in diesen drei Berichtsjahren bei der Königlichen Regierung die Einführung der obligatorischen mikroskopischen Untersuchung des Schweinefleisches auf das Vorhandensein von Trichinen wiederholt Gegenstand eingehendster Erörterungen gewesen, obgleich sich ein Bedürfniss für die Einführung derselben im diesseitigen Bezirke nie geltend gemacht hat.

"Sämmtliche Landräthe des Bezirks halten eine Nothwendigkeit der Einführung jener Untersuchung nicht für vorhanden und bezweifeln, wenn auch nicht Zweckmässigkeit, so doch ihre Ausführbarkeit.

"Auf dem flachen Lande und in der Eifel erfolgt nämlich das Schlachten der Schweine hauptsächlich nur in den beiden Wintermonaten Januar und Februar, während in den übrigen Monaten des Jahres nur ganz ausnahmsweise stattfindet. Eine *sorgfältige* mikroskopische Untersuchung, welche doch nur allein Schutz gegen Trichinose bieten wurde, ist, da es in Anbetracht des eben erwähnten Umstandes auf dem Lande an einer zur Vornahme solcher Untersuchung genügenden Anzahl qualificirter Persönlichkeiten mangelt, nicht ausführbar. Müssten jedoch trotzdem die Untersuchung vorgenommen werden, so würde dies naturgemäss nur in höchst oberflächlicher Weise geschehen können; eine solche Untersuchung bietet aber durchaus keine Sicherheit gegen die Gefahr der Trichinose. * * * Ausserdem wird, was unzweifelhaft die grösste Sicherheit gegen die Gefahr der Trichinose bildet, im hiesigen Bezirke fast ohne Ausnahme das Schweinefleisch nur gekocht resp. stark gebraten verzehrt. Gegen rohes und selbst gegen nicht ganz durchgebratenes also immerhin noch rohes Fleisch besteht in allen Schichten der Bevölkerung ein grosser Widerwillen."

It would appear that the opposition to the introduction of the microscopic inspection has, in part at least, been overcome, for regulations authorizing the inspection were issued on August 27, 1897, and February 25, 1898.

Arnsberg.................................... 69 cases, 1 death.

Official records for the years 1892–1898 are not accessible. No cases were found for the years 1882 (Schönfeld; 1884) 1883, 1884 (Katerbau, 1888, p. 121); 1886–1888 (Tenholt, 1891, p. 86); 1889, 1890 (Tenholt, 1894, p. 97); 1892–1898. The following records have been found:

1881, 24 cases, 1 death. All due to inspected meat.

1885, 5 cases, 0 death. The hog had been inspected.

1891, 40 cases, 0 death. The hog was certified as inspected, but doubts have been raised as to whether it was really examined.

Of these 69 cases it will be noticed that at least 29 were caused by inspected meat, while 40 more were caused by meat which was officially certified as inspected. No cases have been attributed to American meats.

"Altena erfreut sich eines öffentlichen Schlachthauses; gleichwohl lehrt der Fall, dass auch in solchen, in erster Linie für die öffentliche Sicherheit errichteten Anstalten die grobsten Versehen vorkommen können, wenn die Vorschriften zwar vorhanden sind, aber die Ausführung derselben nicht gehörig überwacht wird.

"Der Schlachthaus-Inspector, ein approbirter Thierarzt, der zugleich die Untersuchung der Schweine auf Trichinen und Finnen in ganz bestimmt vorgeschriebener Weise vorzunehmen hatte, hat das Schwein, von welchem die Infection nachweislich ausgegangen ist, höchst wahrscheinlich gar nicht untersucht. Es waren an dem betreffenden Tage ausserordentlich viele, etwa zwanzig Schweine im Schlachthause geschlachtet worden. Die hierdurch bedingte reichliche Arbeit in Verbindung mit dem Umstande, dass unter den westfälischen Schweinen nur äusserst selten bisher Trichinen entdeckt worden sind, mag den Fleischbeschauer zu der Unterlassungssünde verleitet haben.

"Die ersten Krankheitsfälle erkannte Herr Dr. vom Hofe; derselbe stellte die Diagnose durch den Nachweis der Trichinen in den von ihm aus der Muskulatur eines seiner Patienten entnommenen Fleischtheilchen fest. Zufolge dessen wurden noch an demselben Tage die noch vorhandenen trichinösen Speckseiten und Schinken, sowie weiterhin ermittelt, dass das betreffende, etwa 14 Tage vorher im Schlachthause geschlachtete Schwein, unter der amtlichen Beglaubigung, dass es untersucht und trichinenfrei befunden sei, dem Verkehr überlassen worden war. Es ist, wie gesagt, höchstwahrscheinlich gar nicht untersucht worden, denn bei der nachträglichen Untersuchung fand sich das Fleisch der vorerwähnten Stücke derartig übersäet mit Trichinen, dass dieselben unmöglich hätten übersehen werden können, zumal sich auch ergab, dass das Mikroskop und die sonstigen Geräthschaften des Fleischbeschauers, wie auch seine persönlichen Fertigkeiten nichts zu wünschen übrig liessen."—*Tenholt, 1894, p. 97.*

Aurich .... 0 case, 0 death.

Official sanitary reports for 1881, 1882, and 1895–1898 are not accessible; and no cases of trichinosis have been found for the years 1881–1898. Rapmund (1887, p. 142) states that no cases were observed during the years 1883, 1884, and 1885; or (1890, p. 88) 1886, 1887, and 1888. Quittel (1894, p. 43) gives no cases under Zoonosen for 1889, 1890, and 1891; or (1896, p. 90) 1892, 1893, and 1894.

A statement made by Quittel (1894, pp. 90, 91) is interesting and important. It leads one to suspect that Aurich does not owe its immunity entirely to the trichina inspection. He says that of a total of 49,413 hogs inspected during the years 1889–1891, not a single animal was found to be trichinous. To many persons this statement may mean that none of the swine slaughtered in Aurich were infected, but other persons may find it difficult to accept this explanation.

Berlin .... 87 cases, 10 deaths.

No local official sanitary reports are accessible to me for the years 1895–1898. As is shown elsewhere, the reports for the years 1881–1894 do not agree in all details, but, as nearly as I have been able to gather, no cases are reported for the years 1886 (Pistor, 1890, p. 169); 1892, 1894, 1896–1898. The cases collected for the other years are:

1881, 21 cases, 2 deaths. Five cases due to inspected meat; 8 cases given without details; source not traced, 3 cases; source known, no details given regarding inspection, 5 cases, 1 death.

1882, 3 cases, 0 death. May have been due to inspected meat, but this is doubtful.

1883, 6 cases, 1 death. Source of infection not given (4) or not known (2).

1884, 10 cases, 1 death. Source not given for 8 cases, 1 death; 2 cases due to meat from Potsdam; details regarding inspection not given.

1885, 15 cases, 1 death. Twelve cases, 1 death, due to inspected meats; no details, 3 cases.

1887, 7 cases, 1 death. Five cases, 1 death, due to uninspected meat from Neu-Kulm-See; details regarding other cases not given.

1888, 5 cases, 3 deaths. Details not given; possibly 1 case, 1 death, repeated from 1887.

1889, 8 cases, 1 death. Said to be due to meat sent in from outside; several (3 ?) cases due to inspected meat; details of other cases not given.

1890, 1 case, 0 death. Source of infection not given.

1891, 1 case, 0 death. Source of infection not given.

1893, 9 cases, 0 death. Said to be due to meat sent in from outside; details regarding inspection not given.

1895, 1 case, 0 death. Source of infection not stated.

[1898, 2 cases, 0 death; source known; other cases; reference obtained after manuscript was completed, hence these cases are not included in summaries.]

[1899, 1 case, 0 death. Source of infection not stated.]

Omitting the year 1899 (see p. 97), it is thus seen that a total of 87 cases, 10 deaths, are reported. None of these appear to have been due to meat *officially* inspected in Berlin; 5 cases appear to have been due to meat *unofficially* inspected in Berlin; and 15 cases, 1 death (possibly 18 cases, 1 death), appear to have been due to meat inspected elsewhere. The details regarding a number of cases, both before 1892 and since that date, are incomplete. At any rate, not a single case has been attributed to American meats; in fact, I have found only 1 case (1895) recorded since 1893.

It is interesting to note that probably the most rabid attacks made upon American pork issue from a certain daily paper published in Berlin, yet 55 cases occurred in this city, or an average of 6⅑ cases per year, during the years (1883–1891) of the prohibition, while only 10 cases (an average of 1⅔ cases per year) have been recorded for the period 1892–1898, during which American pork has been imported under certificate. During the nine years when American pork was excluded, 8 deaths occurred; during the seven years of importation under certificate, not a single death appears to have been reported. Thus it is difficult to see how American pork has been so dangerous as alleged for the Berlin public.

It is interesting to note that the Berlin police authorities have felt it necessary to warn people against relying too implicitly upon the German inspection, as shown in the following:

Prussia.—Berlin.—Warning against eating raw pork.[1]

As experience has shown, the general public does not sufficiently take cognizance of the fact that even when a well-organized and reliable local inspection of all slaughtered swine exists, nevertheless, pork which has not been examined at all or has been superficially examined comes on the market and is a source of great danger to life and health; this uninspected or poorly inspected pork comes in part from places in which inspection is carried on, yet is not required for all hogs, in part from places where no inspection is carried on, and in part is due to an evasion of the existing laws.

Warning is therefore given against the use as food of all raw pork, and it is further brought to the notice of the public that a thorough cooking of the meat, as well as of all pork products (meat, blood-liver sausages, dumplings, pickled pork, etc.), will kill any trichinæ which are present, and thus exclude all danger of infection. In order to bring about a thorough cooking of larger pieces, it is necessary to make deep incisions in the meat, about 8 cm. (4 inches) apart, so that the necessary degree of heat (lit. boiling heat) can penetrate to the deepest layers.

(Signed) FREIHERR V. RICHTHOVEN (*President*), *Chief of Police.*

BERLIN, *March 20, 1889.*

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[1] [Original.]

Preussen.—Berlin.—Warnung vor dem Genuss von rohem Schweinefleisch.

Wie die Erfahrung mehrfach erwiesen hat, beherzigt das Publikum die Thatsache immer noch nicht genügend, dass selbst dann, wenn eine gut organisirte und zuverlässige Fleischschau am Wohnort für alle geschlachteten Schweine besteht, doch theils aus Orten, in welchen die Fleischschau zwar eingeführt aber nicht für alle geschlachteten Schweine vorgeschrieben ist, theils aus Orten ohne jede Fleischschau, theils endlich mit Umgehung der bestehenden Bestimmungen, gar nicht oder mangelhaft untersuchtes Schweinefleisch in den Verkehr gelangen und grosse Gefahren für Leben und Gesundheit der Konsumenten herbeiführen kann.

Es wird daher vor dem Genuss jeglichen rohen Schweinefleisches ernstlich gewarnt und ferner darauf hingewiesen, dass lediglich ein vollkommenes Garkochen (Durchbraten) der Fleischstücke, wie sämmtlicher Zubereitungen aus Schweinefleisch (Fleisch, Blut-Leberwürste, Klösse, Sülzen, etc.) im Stande ist, die etwa vorhandenen Trichinen zu tödten und dadurch jede Gefahr einer Gesundheitsschädigung auszuschliessen. Um das Garkochen, Durchbraten grösserer, dicker Stücke (Schinken, Genickbraten, etc.) zu ermöglichen, ist es nothwendig, tiefe, etwa 8 cm. von einander entfernte Einschnitte in die betreffenden Stücke zu machen, damit auf diesem Wege die Siedhitze auch auf die tiefst gelegenen Fleischschichten hinreichend einwirken vermag.

Berlin, den 20. März 1889.

Der Polizei-Präsident.

(Gez.) FREIHERR VON RICHTHOVEN.

Breslau .... 108 cases, 14 deaths.

No official reports are accessible for the years 1881, 1883, 1895–1898. No cases have been collected for the years 1881, 1883, 1890, 1891, 1893, 1894, 1896, 1898. The following cases have been compiled:

1882, 7 cases, 1 death. One case, 1 death, due to inspected meat; 6 cases to uninspected meat.

1884, 4 cases, 1 death. One case, 1 death, due to condemned meat; 3 cases to "imported [from where?] meat."

1885, 23 cases, 4 deaths. Sixteen cases, 3 deaths, due to inspected meat; 3 other cases may have been due to inspected meats; 4 cases, 1 death, to uninspected meat.

1886, 20 cases, 1 death. Seven cases, 1 death, due to uninspected meat; details not complete for other 13 cases; source of 3 cases known.

1887, 19 cases, 1 death. Seventeen cases, 1 death, due to inspected meat; 2 cases due to meat eaten before inspection.

1888, 4 cases, 0 death. Due to sausage made before meat was inspected.

1889, 14 cases, 6 deaths. Due to condemned meat.

1892, 3 cases, 0 death. Apparently due to inspected meat.

1895, 5 cases, 0 death. Due to inspected meat.

1897, 9 cases, 0 death. All due to inspected meat.

Thus, of 108 cases, 14 deaths, collected for 1881–1898, 84 cases, 13 deaths, are reported for the nine years when American pork was excluded; the 7 cases reported for 1882 are accounted for; of the remaining 17 cases, 0 death (reported since 1891), 14 cases appear to have been due to inspected meats. The details of 3 cases are lacking, but no one seems to have ever suggested that they were due to American meat. In view of these statistics it is somewhat difficult to see that American pork has been responsible for any cases of trichinosis in this Regierungs-Bezirk. Wolff (1890, p. 39), in discussing the inspection, remarks:

> Bei den periodischen, von den Kreismedicinalbeamten ausgeführten Revisionen, der von den Fleischbeschauern bei Ausübung ihres Berufs gebrauchten Mikroskope ist die Erfahrung gemacht worden, dass in nicht seltenen Fällen die Mikroskope der Fleischbeschauer schadhaft und von schlechter Beschaffenheit waren.

With this official testimony that a number of microscopes were out of order and of poor construction, we must either conclude that Breslau does not owe its comparative freedom from trichinosis entirely to the microscopic inspection, or that the Breslau inspectors are so keen sighted that they can easily detect trichinæ with poor microscopes. As to the probability of the latter explanation, the reader is referred to the above statistics.

Even when meat is known to be trichinous there seems to be some fatality in Breslau about its not being safeguarded in such a way as not to cause trichinosis, for 14 cases, 6 deaths, were due to condemned meat, which, had it been properly cooked or cured, could have been safely eaten.

Bromberg .... 269 cases, 5 deaths.

Official Bezirk sanitary reports are not accessible for the years 1895–1897. No cases found recorded for the years 1873–1882 (Strahler, 1883); 1889 (Peters, 1893, pp. 47–49); 1893 (Siedamgrotzky, 1896, pp. 51, 52); 1896, 1898. The following cases have been collected:

1883, 20 cases, 2 deaths. Meat was inspected and known to be trichinous, but was made into sausage.

1884, 11 cases, 0 death. Eight cases due to inspected meat; 3 cases to uninspected meat.

1885, 90 cases, 0 death. Traced to two butchers who were in the habit of smuggling meat away from the inspection.

1886, 1 case, 0 death. Meat eaten before hog was inspected.

1887, 45 cases, 1 death. It is possible that the meat was not inspected; may have been smuggled. See p. 68.

1888, 36 cases, 2 deaths. Two cases, 1 death, due to condemned meat; 25 cases to meat which is supposed to have been smuggled away from the inspection; 6 cases, 1 death, to uninspected meat; source of 3 cases not determined.

1890, 23 cases, 0 death. Three cases due to inspected meat; 11 cases to pork imported from Russia; source of 2 cases not traced; details regarding inspection for 7 cases not given.

1891, 1 case, 0 death. Meat not inspected.

1892, 12 cases, 0 death. All due to inspected meats.

1894, 19 cases, 0 death. Eighteen cases due to inspected meat; 1 case due to meat eaten before it was inspected.

1895, 8 cases, 0 death. Traced to official rations, hence source determined; details regarding inspection not given.

1897, 3 cases, 0 death. Source of infection not given.

It will be seen that R.-B. Bromberg has not a very enviable history so far as its outbreaks of trichinosis are concerned. In a total of 269 cases, 5 deaths, 227 cases, 5 deaths, occurred during the years 1883–1891, and 42 cases, 0 death, during the years 1892–1898. Of the total 269 cases, 5 deaths, 41 cases were due to inspected meat; 70 cases, 1 death, supposed to be due to meat which was smuggled away from the inspection; 90 cases due to meat sold by butchers who were in the habit of smuggling meat away from the inspection; 22 cases, 3 deaths, due to inspected meat known to be trichinous; 3 cases due to meat eaten before it was inspected; 10 cases, 1 death, due to meat which was not inspected; 11 cases due to meat imported from Russia, details regarding inspection not given; source of 15 cases known, but details regarding inspection not given; source not traced in 5 cases; source not given in 3 cases. Thus all cases are accounted for except 8; 5 of these occurred during the exclusion of American meats. For the 3 cases in 1897 no details are given.

Not a single one of the 40 cases during 1892–1898 has been alleged to be due to American meats.

The trichina inspection was instituted by an order dated January 4, 1875. Strahler (1883, pp. 70, 71) calls attention to the higher percentage of trichinosis among the hogs in the Kreisen Wongrowitz, Gnesen, Mogilno, and Inowrazlaw, and says that prior to the introduction of the microscopic inspection trichinosis in man was frequently observed in these places, especially in Wongrowitz. Peters (1890, p. 59) states that it has not been possible to introduce the inspection in all the country places:

> "Im hiesigen Bezirk besteht bis jetzt noch nicht die üble Gewohnheit, Schweinefleisch im rohen Zustande zu geniessen, daher ist trotz der ausserordentlichen Verbeitung der Trichinen unter den Schweinen die Häufigkeit der Erkrankungen beim Menschen keine sehr grosse, obwohl die obligatorische Untersuchung des Schweinefleisches in den ländlichen Ortschaften noch nicht überall eingeführt werden konnte."—*Peters, 1890, p. 59.*

From the above discussion it is not clear that the inspection alone has resulted in entirely protecting this district from trichinosis.

Cassel .... 150 cases, 2 deaths.

No official health reports are accessible for the years 1895–1898. No cases of trichinosis appear to be recorded for the years 1883, 1885 (Rockwitz, 1888, p. 35); 1887 (Rockwitz, 1892, p. 62); 1889–1894 (Weiss, 1894, p. 99; 1896, p. 108); 1895–1898. The following statistics have been collected:

1881, 49 cases, 0 death. Forty-one cases due to inspected meats; source of 8 cases not known.

1882, 35 cases, 0 death. Eighteen cases due to inspected meats; 17 due to uninspected meats.

1884, 51 cases, 0 death. All apparently due to inspected meats.

1886, 12 cases, 2 deaths. All apparently due to inspected meats.

1888, 3 cases, 0 death. All apparently due to inspected meats.

Thus, of a total of 150 cases, 2 deaths, 84 cases occurred before American pork was excluded, 59 of which were due to inspected meat, 17 to uninspected meat, while the source of infection in 8 cases is not stated. During the exclusion of American pork 66 cases, 2 deaths, occurred, all of which appear to have been due to inspected meats. Since the readmission of American pork no cases appear to have been reported. Rockwitz (1888, p. 236) refers to the "Mängel der Trichinenschau [und] Unzuverlässigkeit der Beschauer."

Coblenz .... 0 case, 0 death.

Official sanitary reports for the years 1881, 1882, and 1895–1898, are not accessible, but no cases of trichinosis for these years were found in the official statistics of the Imperial health office. No cases were found in the official sanitary reports of the R.-B. Coblenz for the years 1883–1894 (Massenbach, 1887, p. 61; 1890, p. 68; 1893; and Wehmer, 1897.) Under these circumstances it can hardly be alleged that the attacks on American pork by the German press find any support in the sanitary history of Coblenz. Wehmer (1897, p. 57) remarks: "Uebrigens schweben inzwischen Verhandlungen wegen Wieder-Einführung einer allgemeinen Trichinen- und Finnenschau für den ganzen Regierungsbezirk." As no general and universal inspection system has existed in the district, it can hardly be claimed that Coblenz owes its immunity from trichinosis to the microscopic inspection; and, as no cases of trichinosis are reported, it can hardly be maintained that American pork has spread this disease among the inhabitants of R.-B. Coblenz.

Coeslin .... 46 cases, 0 death.

No local official sanitary reports are accessible for the years 1895–1898. No cases appear to be reported for the years 1881 (Massenbach, 1883, p. 39); 1882 (Massenbach, 1884); 1884 (Wernich, 1887, p. 163); 1886, 1888 (Wernich, 1890, p. 99); 1889–1891 (Roth, 1893, p. 88); 1892–1894 (Grisar, 1896, p. 116); 1895–1898. The only cases found were:

1883, 1 case, 0 death. Meat apparently not inspected.

1885, 3 cases, 0 death. Sausage eaten before meat was inspected.

1887, 42 cases, 0 death. All apparently due to meat which had either been inspected, or had been smuggled away from the inspection.

Thus 48 cases, 0 death, are reported for the years 1883–1891, while no cases have been found for the years 1892–1898. Grisar (1896, p. 116) remarks:

"Die mikroskopische Fleischbeschau ist nunmehr in sämmtlichen 23 Städten während der Berichtszeit (1892–94) eingeführt worden. Für das platte Land ist diese Massregel, von vereinzelten grösseren Ortschaften abgesehen, wo die mikroskopische Fleischbeschau privatim ausgeübt wird, bisher nicht gehandhabt worden."

Grisar also states that some American pork is brought in through Russia, a statement I find it difficult to interpret, since Russia does not import American pork.

Cologne [Köln] .... 127 cases, 0 death.

No official district health reports are accessible for the years 1895–1898. No cases appear to be reported for the years 1884, 1885 (Schwartz, 1887); 1886–1888 (Schwartz, 1893, p. 35); 1889–1891 (Schwartz, 1893, p. 35); 1892–1894 (Weyhöfer, 1897). The only cases found for the period 1881–1898 are:

1881, 3 cases, 0 death. Ham from Westphalia; details regarding inspection not given.

1882, 89 cases, 0 death. Due to condemned meat.

1883, 35 cases, 0 death. Due to inspected meat.

Besides these 127 cases, 0 death, none of which have ever been alleged to be due to American meat, there is a reference to 1 case (by Bouley, 1884, p. 395) for 1883, which he attributes to American pork. As is shown on p. 173, this may possibly refer to a cat. (See also p. 178.)

There are but few parts of Prussia where more severe attacks appear upon American pork than in the R.-B. Cologne. The Cologne statistics, however, would give rise to the suspicion that these attacks are not based entirely upon purely sanitary motives.

Danzig .... 20 cases, 3 deaths.

No official local health reports are accessible for the years 1881–1882, 1889–1891, 1895–1898. No cases appear to be recorded for the years 1881–1882; 1883–1885 (Zeuschner, 1887); 1888 (Zeuschner, 1891, p. 50); 1889–1891; 1893–1894 (Borntraeger, 1897, p. 160); 1895–1898. The only cases found are:

1886, 2 cases, 2 deaths. From sausage; details regarding inspection not given.
1887, 10 cases, 0 death. Due to inspected meat.
1892, 8 cases, 1 death. Source known; details regarding previous inspection not given.

Thus, of the 20 cases, 3 deaths, collected, 12 cases, 2 deaths, occurred while American pork was excluded, and the 8 cases, 1 death, which have occurred since the readmission of American pork are known to have been due to German meat. The health statistics of R.-B. Danzig do not, therefore, appear to support the anti-American attacks of the agrarians.

Düsseldorf .... 84 cases, 3 deaths.

Official reports are not accessible for the years 1882, 1895–1898. No cases appear to be recorded for the years 1882–1883; 1884 (Weiss, 1888, p. 95); 1887–1888 (Weiss, 1890, pp. 70, 152); 1892–1894 (Michelsen, 1897); 1895–1898. The following statistics have been gathered:

[1877–1880, 171 cases, ? deaths. Details not all accessible. See Weiss, 1890, p. 152.]
1881, 16 cases, 3 deaths. Alleged, by the German Government, to be due to American pork, see p. —.
1885, 3 cases, 0 death. Details not given.
1886, 5 cases, 0 death. Hog probably not inspected.
1889, 20 cases, 0 death. Details not given. (See remarks p. 75.)
1890, 20 cases, 0 death. Details not given. (See remarks p. 75.)
1891, 20 cases, 0 death. Details not given. (See remarks p. 75.)

Thus in a total of 84 cases, 3 deaths, one outbreak (16 cases, 3 deaths) in 1881 is alleged, by the German Government, to have been due to American pork; 68 cases are reported for the period during which American pork was excluded, and no cases have been reported since its readmission. The entire cost (Weiss, 1890, p. 152), at the rate of 1 mark per hog, for a general inspection of pork for R.-B. Düsseldorf would be 396,000 marks; at the ratio of trichinous hogs found during the inspection (5:96,000), the finding of each hog would cost about 19,000 marks. If this estimate were extended to entire Germany, the cost of the inspection would be 13,000,000 marks per year.

Erfurt .... 121 cases, 1 death.

Official local health reports are not accessible for the years 1895–1898. No cases appear to be recorded for the years 1884–1885 (Richter, 1888, p. 114); 1886, 1888 (Pippow, 1892, p. 114); 1889–1891 (Pippow, 1894, p. 64); 1892–1894 (Pippow, 1897, p. 82); 1895; 1897–1898. The following statistics have been gathered:

1881, 58 cases, 0 death. Fifty cases due to inspected meat; details regarding 8 cases are lacking in my notes.
1882, 15 cases, 1 death. Ten cases, 1 death, due to inspected meat; source of 5 cases not definitely established.

1883, 9 cases, 0 death. Due to meat eaten before hog was inspected.

1887, 12 cases, 0 death. Apparently due to inspected meats.

1896, 27 cases, 0 death. Due to inspected meat.

Thus in a total of 121 cases, 1 death, 99 cases, 1 death, appear to have been due to inspected meat; 9 cases due to meat eaten before inspection; source of 5 cases is apparently not established; details are lacking in my notes regarding 8 cases. No cases are alleged to have been due to American meats.

"Von den Fleischbeschauern gelangt jährlich der 3. Theil zur Nachprüfung durch die Kreisphysiker; die Nichtbestandenen wurden zu einer Wiederholung derselben veranlasst, welcher sich einzelne durch Niederlegung des Amtes entzogen. Mit der Nachprüfung war eine Revision der Mikroskope verbunden. Der Erfolg sprach für die Zweckmässigkeit dieser Massregel. Wennschon die Mehrzahl der Berschauer auf einen guten Zustand ihres Mikroskopes hielt, so fiel es doch auf, wie gering die Anforderungen sind, welche einzelne derselben an die Leistungsfähigkeit ihrer Instrumenten stellten."—*Pippow, 1894.*

Frankfurt a. O .... 137 cases, 14 deaths.

Official local health reports are not accessible for the years 1882, 1895–1898. No cases appear to be reported for the years 1882–1883 (Wiebecke, 1888, p. 36); 1886–1888 (Frankfurt a. O., 1890, p. 39); 1891 (Wiebecke, 1893, p. 70); 1893–1894 (Frankfurt, 1896, p. 68); 1895–1898. The following records have been collected:

1881, 21 cases, 2 deaths. Regarding 18 cases, 2 deaths, my notes contain no details; source of other cases known, but no details given regarding inspection.

1884, 2 cases, 0 death. *Possibly* only 1 case; meat not inspected.

1885, 82 cases, 11 deaths. Three cases probably due to inspected meat; 48 cases, 8 deaths, to uninspected meats; no details in my notes regarding 19 cases, 1 death; for 2 cases, 2 deaths, it is not stated whether or not the meat was inspected; source of 10 cases not known.

1889, 8 cases, 0 death. Due to inspected meat.

1890, 20 cases, 0 death. Details not given.

1892, 4 cases, 1 death. Apparently due to inspected meat.

Thus of 137 cases, 14 deaths, it would appear that 50 cases, 8 deaths, were due to uninspected meat; 5 cases, 2 deaths, due to infection, the source of which was known, but no details are given regarding the inspection; 15 cases, 1 death, due to inspected meats; source was not traced in 10 cases; regarding 57 cases, 3 deaths, my notes contain no data.

The only cases which have been reported since the reintroduction of American meats are accounted for as being due to inspected pork and it is not even alleged that this was of American origin.

"Der Kreistag des Kreises Züllichau lies sämmtliche Fleischbeschauer seit dem Mai 1892 durch den Physikus nachprüfen. Mangelhafte Beschaffenheit, selbst Unbrauchbarkeit der Mikroskope, der Präparations-Utensilien, Unkenntniss der gesetzlichen Bestimmungen, lückenhafte Kenntnisse und selbst mitunter mangelnde technische Fertigkeit haben mannigfache Abhelfe erfordert und die Zuverlässigkeit einzelner Fleischbeschauer in Frage gestellt. Die Nachprüfungen boten zugleich Gelegenheit zur Einführung des Compressoriums an Stelle der bisher verwendeten Objectgläser.

Die Instrumente der Fleischbeschauer im Kreise Soldin wurden im Jahre 1892 einer Revision unterzogen; 30 von 49 Mikroskopen erwiesen sich als mangelhaft resp. schlecht, da sie theils trübe Linsen, theils kein Compressorium, einen zu kleinen Tisch, zu kleine Objectgläser, keine mikrometer Schraube u. s. w. hatten, sowie zu ihrer Handhabung zu viel Zeit und Aufmerksamkeit beanspruchten. * * * Ebenso fand die Nachprüfung der Fleischbeschauer im Kreise Königsberg statt, in Folge dessen einzelne ihr Amt niederlegten, andere die Prüfung wiederholen mussten. Ausserdem mussten die Mikroskope theils reparirt, theils neu beschaft werden."—*Frankfurt a. M., 1896, p. 88.*

Gumbinnen .... 103 cases, 8 deaths.

Official district sanitary reports are not accessible for the years 1895–1898. No cases have been found for the years 1885 (Passauer, 1887, p. 142); 1886, 1887 (Passauer, 1890, p. 106); 1889, 1891 (Passauer, 1893, pp. 111, 115); 1892, 1893, 1894 (Passauer, 1896, p. 149); 1895, 1897, 1898. The following cases have been collected:

1881, 11 cases, 0 death. Three cases due to meat eaten before inspection; my notes give no details regarding the other 8 cases.

1882, 24 cases, 2 deaths. Six cases due to uninspected meat; source of 3 cases known; details regarding inspection not given; no details regarding 15 cases, 2 deaths.

1883, 10 cases, 0 deaths. Suspected, but not proved, that meat was inspected; source known.

1884, 13 cases, 0 death. No details given for 12 cases; no data known for 1 case.

1888, 14 cases, 1 death. Due to uninspected meat.

1890, 11 cases, 0 death. Eight cases from inspected meat; 3 cases due to uninspected meat.

1896, 20 cases, 5 deaths. Sixteen cases, 4 deaths, due to uninspected meats; source of other outbreaks (4 cases, 1 death) apparently known, but details regarding inspection not given.

Thus, of 103 cases, 8 deaths, 3 cases were due to meat eaten before inspection; 39 cases, 5 deaths, were due to uninspected meat; the source of 7 cases, 1 death, was traced, but no details are given regarding inspection; 10 cases were due to meat which was suspected to have passed the inspection; 8 cases were due to inspected meat; my notes contain no details regarding 35 cases, 2 deaths; regarding 1 case nothing is known. All the cases since 1892 are accounted for and not one of them attributed to American meat. Passauer (1896, p. 191) gives the following details regarding the inspection in this district. (Cf. also remarks, p. 78, on Kr. Johannisburg, 1890):

"Ferner ist festgestellt, dass vielfach Defraudationen bei der Trichinenschau insofern vorgekommen sind, als nicht auf Trichinen untersuchtes Fleisch auf Grund von Bescheinigungen, welche über untersuchtes Fleisch ausgestellt waren, in den Handel gebracht ist. Es ist deshalb in Frage gekommen, ob es sich empfiehlt, sämmtliche auf Trichinen untersuchte Schweine mit einem Farbenstempel an verschiedenen Stellen versehen zu lassen. Endlich ist thatsächlich erwiesen, dass eine Menge von Fleischwaaren, welche in grösserer oder kleinerer Quantität von Russland her über die Grenze gebracht wird, bisher gänzlich ohne Kontrole bezüglich der Untersuchung auf Trichinen geblieben ist. Auch dieser Uebelstand harrt noch einer durchgreifenden Abhilfe. Inzwischen ist die ganze Frage in ein weiteres Stadium dadurch getreten, dass von Neuem die allgemeine obligatorische Fleischbeschau auf

Trichinen und gleichzeitig die allgemeine Fleischbeschau, d. h. die Untersuchung sämmtlicher Schlachtthiere, deren Fleisch zur menschlichen Nahrung bestimmt ist, vor und nach der Schlachtung angeregt worden ist. Das vorliegende Projekt ist einer eingehenden Erörterung unterzogen worden und sind umfangreiche Erhebungen über die Durchführbarkeit desselben im Gange. Ein weiterer Bericht über den Ausgang dieser Angelegenheit bleibt für den nächsten General-Medizinalbericht vorbehalten."

With this official testimony before us, showing the fraudulent use of certificates for uninspected meats, it is difficult to assume that Gumbinnen owes its freedom from trichinosis in recent years entirely to the microscopic inspection. It is also difficult to see in the Gumbinnen health statistics any support for anti-American attacks.

Hannover .... 3 cases, 0 death.

No official health reports are accessible for the years 1881, 1882, and 1895–1898; but no cases of trichinosis for this Regierungs-Bezirk during these years (except 1898) were found in the official statistics of the Imperial health office. No cases of trichinosis were found in the official health reports for the years 1883–1894 (Becker, 1887, 1891, 1894, and 1897). The only cases found were:

1898, 3 cases, 0 death. Details not given; the occurrence of these cases is questioned in Hannover.

[1899, 0 cases, 0 death. Details not given.]

Hannover forms an excellent example of conditions which might at first sight be misinterpreted. The fact that no cases of trichinosis have occurred in this Regierungs-Bezirk for so many years has been quoted as "proof" of the efficiency of the inspection system, but a glance at the following extracts from Becker's official reports will lead the reader to be somewhat reserved in regard to the "proof." It will be noticed that Becker states in 1891, 1894, and again in 1897, that a number of trichinæ inspectors in the country were found to be unfit for this work, and that many of the microscopes were so dirty that they were practically useless.

"Die regelmässigen Nachprüfungen der Fleischbeschauer durch die Kreisphysiker haben auch in den Berichtsjahren die Nothwendigkeit einer solchen Massregel deutlich erkennen lassen; sowohl das theoretische Wissen über die Entwickelungsgeschichte, 2c., der Trichinen als auch das practische Auffinden derselben erwies sich in manchen Fällen als mangelhaft, und in recht vielen Fällen waren die Mikroskope so verstaubt und verschmutzt, dass deutliche Bilder mit denselben überhaupt nicht zu [p. 113] gewinnen waren. Wo Wissen und Können sich als völlig unzureichend erwies, wurden die Betreffenden aus ihrem Amte entfernt, in andern Fällen ihnen aufgegeben, durch Theilnahme an einem neuen Unterrichtskurse die verloren gegangenen Kenntnisse sich wieder zu erwerben und sich nach einigen Wochen einer abermaligen Prüfung vor dem Kreisphysicus zu unterziehen, von deren Bestehen ihr weiteres Verbleiben im Amte abhängig gemacht wurde.

"Manche legten darauf ihr Amt freiwillig nieder, die Mehrzahl erwies sich bei den Nachprüfungen als jetzt ausreichend unterrichtet. Bei dem Materiale, aus welchem namentlich auf dem Lande die Fleischbeschauer sich recrutiren, Häuslinge, kleine Handwerker, Hausschlächter und dergl. ist eine strenge Controlle derselben absolut erforderlich, soll nicht das ganze Institut der mikroskopischen Fleischschau mit Recht in Misscredit gerathen. Für Unterrichts- und Prüfungszwecke stehen den Kreisphysikern jederzeit ausreichende Mengen trichinenhaltigen Fleisches im hiesigen Schlachthause zur Verfügung."—*Becker, 1891, pp. 11?, 113.*"

"Es geht nicht nur das theoretische Wissen über die Entwickelungsgeschichte, 2c., der Trichinen verloren, auch das praktische Auffinden derselben ist in manchen Fällen äusserst mangelhaft und erklärt sich zum Theil aus dem mangelhaften Zustande, in welchem die Mikroskope in manchen Fällen vorgefunden wurden. Sie waren in nicht wenigen Fällen so verstaubt und verschmutzt, dass deutliche Bilder mit denselben überhaupt nicht gewonnen werden konnten. Wo Wissen und Können sich als durchaus unzureichend erwies, wurden die Betreffenden aus ihrem Amte entfernt, bei geringeren Mängeln ihnen aufgegeben, durch Theilnahme an einem neuen Unterrichtskurse die verloren gegangenen Kenntnisse zu ersetzen und sich nach einigen Wochen einer erneuten Prüfung vor dem Kreisphysikus zu unterziehen, von deren Bestehen das weitere verbleiben im Amte abhängig gemacht wurde. Eine Anzahl legte dann das Amt freiwillig nieder, andere erwiesen sich bei den Nachprüfungen als jetzt ausreichend unterrichtet.

"Da die Fleischbeschauer auf dem Lande sich meistens aus Häuslingen, kleinen Handwerkern und dergleichen rekrutiren, so ist strenge Controle derselben eine absolute Nothwendigkeit, soll nicht die ganze mikroskopische Fleischschau mit Recht in Misscredit gerathen."—*Becker, 1894, p. 95.*

"Daraus erklärt es sich, dass das Ergebniss der Nachprüfungen der Fleischbeschauer lurch die Kreisphysiker auf dem Lande wesentlich schlechter ausfällt als in der Stadt Hannover, und dass alljährlich eine Anzahl Fleischbeschauer wegen mangelnden theoretischen Wissens und Mangel an Fertigkeit in dem Auffinden von Trichinen aus ihrem Amte entweder entfernt werden oder sich nach erneuter Betheiligung an einem Unterrichtscurse einer wiederholten Prüfung unterziehen müssen. Auch erweisen sich bei der Nachprüfung die Mikroscope oft in einem so verschmutzten Zustande, dass klare Bilder mit denselben überall nicht gewonnen werden können, kurz, ohne regelmässige Beaufsichtigung und Nachprüfung von Seiten der Kreisphysiker dürfte die Zuverlässigkeit der Untersuchungen in vielen Fällen schweren Bedenken unterliegen."—*Becker, 1897, p. 90.*

Hildesheim .... 112 cases, 4 deaths.

Official local health reports are not accessible for the years 1881, 1883–1885, 1895–1898. No cases have been found for the years 1881, 1883–1885; 1886 (Grün, 1890, p. 45); 1889–1891 (Grün, 1894, p. 59); 1892–1894 (Grün, 1897); 1895–1898. The following cases have been collected:

1882, 7 cases, 0 death. No details regarding source.
1887, 103 cases, 3 deaths. Due to inspected meat.
1888, 2 cases, 1 death. Meat not inspected.

Thus, of 112 cases, 4 deaths, 103 cases, 3 deaths, were due to inspected meat; 2 cases, 1 death, to uninspected meat. My notes contain no data regarding 7 cases. No cases have been attributed to American meats, and no cases have been found recorded for the years since the readmission of American pork.

Grün (1897, p. 63) inveighs against the American inspection, and says that at least the hams and sides ought to be reinspected in Germany, although he believes that the reinspection of sausage can not be carried out. ("Die Untersuchung einer Wurst sei indessen unthunlich.") He fails, however, to show the danger connected with eating American meats.

Königsberg .... 313 cases, 33 deaths.

No official health reports for this district are accessible for the years 1895–1898. No cases have been collected for 1890. The following records have been compiled:

[1876–1879, 273 cases, 21 deaths. Details not all accessible. See Nath, 1885, p. 116.]

[1880, 29 cases, 0 death. Details not all accessible. See Nath, 1885, pp. 116, 117.]

1881, 3 cases, 1 death. Details not given in my notes.

1882, 14 cases, 0 death. Six cases due to inspected meat; 5 cases to uninspected meat; details regarding 3 cases lacking.

1883, 23 cases, 1 death. Eight cases, 1 death, due to uninspected meat; details regarding 15 cases are lacking.

1884, 50 cases, 9 deaths. Two cases due to inspected meat; 6 cases to uninspected meats; details lacking in 5 cases, 1 death; source known in remaining 37 cases, 8 deaths, but details regarding inspection not given.

1885, 37 cases, 1 death. Eleven cases due to uninspected meats; source of 7 cases known, but no details obtained regarding inspection; data lacking for 19 cases, 1 death.

1886, 32 cases, 3 deaths. Seven cases due to inspected meat, 6 cases to uninspected meat; source of 16 cases, 3 deaths, known, but details regarding inspection are not given; no data collected regarding 3 cases.

1887, 36 cases, 2 deaths. Thirty-two cases, 1 death, due to uninspected meat; 4 cases, 1 death, due to meat eaten before it was inspected.

1888, 26 cases, 4 deaths. All due to uninspected meat.

1889, 24 cases, 6 deaths. Fifteen cases, 4 deaths, due to uninspected meats; data regarding 9 cases, 2 deaths, not given in my notes.

[1890, 7 cases, 0 death. Omit from statistics, probably belong to 1889.]

1891, 16 cases, 0 death. Nine cases due to inspected meats; 7 cases due to meat eaten before inspection.

1892, 10 cases, 0 death. Source of 5 cases known, but no details given regarding inspection; data of 5 cases lacking.

1893, 10 cases, 1 death. Four cases due to inspected meat; 3 cases to uninspected meat; 3 cases, 1 death, due to meat eaten before inspection.

1894, 2 cases, 0 death. Due to uninspected meat.

1895, 3 cases, 1 death. Source known, details regarding inspection not given.

1896, 3 cases, 0 death. Due to uninspected meat.

1897, 20 cases, 4 deaths. Fifteen cases, 2 deaths, due to uninspected meat; source of 5 cases, 2 deaths, known, but details regarding inspection not given.

1898, 4 cases, 0 death. Said to have been due to inspected meat.

[1899, 4 cases, 1 death. Due to inspected meat.]

Thus, of a total (1881–1898) of 313 cases, 33 deaths, 32 cases were due to inspected meats; 132 cases, 12 deaths, to uninspected meats; 14 cases, 2 deaths, to meat eaten before it was inspected; the source of 73 cases, 14 deaths, was known, but data regarding inspection are not given; and no data regarding source of infection are collected for 62 cases, 5 deaths.

Chronologically, of the 313 cases, 33 deaths, 17 cases, 1 death, occurred prior to the 1883 decree; 244 cases, 26 deaths, occurred during the years of the exclusion of American pork (1883–1891), giving an average of $27\frac{1}{9}$ cases, $2\frac{8}{9}$ deaths, per year; 52 cases, 6 deaths (average of $7\frac{3}{7}$ cases, $\frac{6}{7}$ death), occurred since the readmission of American meat; of these 52 cases, 6 deaths, details regarding the source of infection are lacking in 5 cases. Not a single case has been found which has been attributed to American meats, although some of the most rabid attacks printed in Germany against American pork appear in an extreme partisan newspaper in Königsberg.

Liegnitz .... 65 cases, 8 deaths.

No local official sanitary reports accessible for the years 1881–1882, 1889–1891, 1895–1898. No cases were found for the years 1881, 1882; 1883–1888 (Philipp, 1886; 1890, p. 97); 1889–1890; 1892–1894 (Philipp, 1896, p. 110); 1895, 1898.

The following cases have been collected:

1891, 61 cases, 8 deaths. All due to inspected meat.
1896, 3 cases, 0 death. Due to uninspected meat.
1897, 1 case, 0 death. Apparently due to inspected meat.

It would thus appear that nearly all of the cases collected for this district were due to inspected meat. That Liegnitz does not owe its comparative freedom from trichinosis for so many years entirely to the trichina inspection will probably be admitted in view of the two following quotations from official reports. Philipp (1890, pp. 96, 97) in discussing the trichina inspection says:

"Diese Angabe [the percentage of trichinosis in hogs reported by the inspectors] sowie die in der vorstehenden Uebersicht angegebenen Befunde kann man leider nur als annähernd richtig ansehen, nachdem sich bei der von dem Herrn Regierungs-Präsidenten im Jahre 1888 in allen Kreisen angeordneten Nachprüfung der Fleischbeschauer und ihrer Mikroskope herausgestellt hat, dass ein Theil der Fleischbeschauer die bei ihnen vorausgesetzte Fähigheit zu den fraglichen Untersuchungen nicht besitzt, und dass auch eine grosse Anzahl der geprüften Mikroskope durch Verunreinigung oder andre Mängel unbrauchbar geworden war.

"Die periodische Nachprüfung der Fleischbeschauer und ihrer Mikroskope war bereits bald nach der Einführung der obligatorischen Untersuchung des Schweinefleisches auf Trichinen im diesseitigen Regierungs Bezirke angeordnet worden, jedoch, wie Referent bei Gelegenheit seiner Dienstreisen ermittelte, in keinem Kreise, ausgenommen theilweise im Kreise Grünberg, zur Ausführung gekommen. Der Herr Regierungs-Präsident ordnete daher an, dass im Laufe des Jahres 1888 in sämmtlichen Kreisen die fraglichen Nachprüfungen durch den Kreis-Physikus auf Kosten der betreffenden Amtsverbände stattfinden sollten.

"Das Ergebniss dieser Prüfungen war ein überraschendes, denn in der überwiegenden Mehrzahl der Kreise wurden zahlreiche grobe Mängel entdeckt. Ein und zwanzig Fleischbeschauer legten unmittelbar nach der Prüfung ihr Amt nieder oder wurden desselben enthoben; mehr als 80 bestanden in der Prüfung nicht und mussten theils einer Nachprüfung unterworfen, theils nochmals unterrichtet werden. Von den untersuchten Mikroskopen wurden gegen 90 stark verunreinigt oder sonst unbrauchbar gefunden.

"Diese Erfahrungen sind einerseits eine dringende Mahnung, die Prüfung der Fleischbeschauer und ihrer Mikroskope periodisch [p. 97] (etwa von 3 zu 3 Jahren) zu wiederholen, anderseits aber zeigen sie wie unzuverlässig der Schutz ist, den das Publicum durch die obligatorisch vorgeschriebene Untersuchung des Schweinefleisches zu haben meint. Aus der Thatsache, dass Fälle von Trichinose bei Menschen im diesseitigen Regierungs bezirke bisher nicht in grosser Anzahl beobachtet worden sind, dürfte nur zu schliessen sein, dass die Unsitte, Schweinefleisch roh oder halbroh zu geniessen in Niederschlesien nicht sehr verbreitet ist; denn alle Polizei-Verordnungen, welche die Untersuchung des Schweinefleisches obligatorisch vorschreiben, können den beabsichtigten Schutz gegen die Uebertragung von Trichinen nur unvollkommen gewähren, während das Publicum durch solche Verordnungen sich leicht in Gleichgiltigkeit oder gar Sicherheit wiegen lässt.

"Im Kreise Bunzlau wurde ein Fleischbeschauer bestraft, weil er die zu untersuchenden Fleischproben eines Schweines, welches sich als Trichinös erwies, nicht selbst entnommen hatte, und der Fleischer wurde bestraft, weil er Theile des betreffenden Schweines *vor* der Untersuchung verkauft hatte. Ein Schaden entstand glücklicherweise nicht, weil das verkaufte Fleisch nur gekocht genossen worden war."

In connection with this report from Dr. Philipp, compare the outbreaks in 1891 at Würchand, p. 81, and Mühlrädlitz, p. 80. Philipp (1896, p. 111) in his last report again pays his respects to the inspection by stating that as a result of the reexamination of the microscopists in 1892, 40 of them resigned, part of them voluntarily, part of them because they were compelled to do so, and a large number had to submit to another examination. Of the microscopes, 26 were absolutely useless, and many were found dirty. Philipp warns people not to eat raw pork, since "the obligatory trichina inspection can not give a safe protection (sicheren Schutz) against trichinosis."

"Die im diesseitigen Regierungsbezirke eingeführte periodische Nachprüfung der Fleischbeschauer und ihrer Mikroskope durch die zuständigen Kreisphysiker hat sich bewährt und in der Mehrzahl der Kreise überraschende Thatsachen zu Tage gefördert. In Folge der im Jahre 1892 abgehaltenen Prüfung legten 40 Fleischbeschauer ihr Amt theils freiwillig nieder, theils wurden sie hierzu veranlasst, und eine grosse Anzahl musste sich einer Nachprüfung unterwerfen.

"Von den untersuchten Mikroskopen wurden 26 für gänzlich unbrauchbar und viele stark verunreinigt befunden.

"Die Erfahrungen bei den in den Jahren 1888 und 1892 abgehaltenen Nachprüfungen fordern dringend zur Fortsetzung dieser Kontrole auf. Daneben aber darf nicht versäumt werden, das Publikum wiederholt vor dem Genusse rohen oder nicht gehörig durchgekochten und nicht durchgebratenen Schweinefleisches zu warnen und darauf hinzuweisen, dass die obligatorisch eingeführte Untersuchung einen sicheren Schutz gegen die Uebertragung von Trichinen nicht gewähren könne."—*Philipp, 1896, p. 111.*

Lüneburg .... 0 case, 0 death.

No official district sanitary reports are accessible for the years 1895–1897, but no cases were found for these years in the statistics of the Imperial health office. No cases have been found in the official sanitary reports for the years 1881–1894 (Alten, 1883, 1887, and 1890, and Nöller, 1897). Nöller (1897, p. 239) states that the obligatory inspection was instituted in this Bezirk in 1877. During the years 1889–1894, 978,174 hogs were examined by 1,168 inspectors and only 22 were found trichinous, or 1:44,461. Such a percentage is difficult to accept as correct. It is, however, interesting to note that, assuming each hog to have been found by a separate inspector, 1,146 microscopists did not find any trichinæ in the hogs slaughtered in the district during the six years. Nöller (1897, p. 239) states:

> "Nach den bei den Nachprüfungen gemachten Wahrnehmungen glauben die Kreisphysiker im Allgemeinen zu der Annahme berechtigt zu sein, dass die Fleschbeschauer vorkommenden Falls im Stande sind Trichinen mit Sicherheit aufzufinden, da sie bei oft theoretisch grosse Unwissenheit durchschnittlich ein gutes Beobachtungstalent erkennen liessen. Freilich mussten hin und wieder einige unfähige oder durch Alter und aus anderen Ursachen unfähig gewordene Fleischbeschauer, namentlich Potatoren entfernt werden.
>
> "Die Mikroskope, obgleich meistens gut gehalten, waren häufig für den Zweck wenig geeignet, mit kleinem Tisch und engem Gesichtsfeld. * * * pp. 240–241. Der Kreisphysikus des Kreises Winsen * * * fand, dass sie bei ihren Untersuchungen oft Jahre hindurch niemals eine Trichine fanden * * * Der Kreisphysikus des Kreises Fallingsbostel [veranlasste] die Versendung von Fleischproben von einem trichinös befundenen Schwein an sämmtliche Fleischbeschauer seines Kreises mit der Aufforderung, über den Befund zu berichtigen. Alle berichteten, dass sie Trichinen gefunden hätten bis auf fünf, unter denen 2 Apotheker und 1 Thierarzt waren."

Magdeburg .... 572 cases, 66 deaths.

No official local sanitary reports are accessible for the years 1881, 1882, 1889–1897. No cases have been found for the years 1881, 1882, 1886–1888 (Voigt, 1891, p. 30); 1890–1892, 1894, 1896, 1898. The following statistics have been collected:

1883, 426 cases, 66 deaths. Four hundred and three cases, 66 deaths, apparently due to inspected meat; source of other 23 cases apparently not established.

1884, 10 cases, 0 death. Three cases due to inspected meats; details of 7 cases are lacking.

1885, 25 cases, 0 death. May have been due to inspected meats, but source of infection apparently not established.

1889, 50 cases, 0 death. Details lacking.

1893, 3 cases, 0 death. Due to inspected meat.

1895, 55 cases, 0 death. Due to inspected meat.

1897, 3 cases, 0 death. Due to inspected meat.

[1899, 3 cases, 0 death. Details not given.]

Thus, of 572 cases, 66 deaths (1881–1898), 511 cases, 66 deaths, occurred during the years of exclusion of American meats, and 61 cases (all accounted for as due to inspected meat) occurred during 1892–1898 (after the readmission). In connection with 7 cases no data are given. All of the others may have been due to inspected meat, although in three outbreaks some of the reports state that the identity of the meat with that of the inspectors' books could not be established.

Voigt (1890, pp. 86–88), in his official report for 1886–1888, makes one of the most scathing attacks upon the German inspection which has ever appeared in print. He says that almost without exception the microscopes in use were absolutely useless. A large number of inspectors had never seen a trichina before the reexamination here described. The preparations made by some of the inspectors showed that a considerable number of the microscopists had no idea of the use of the microscope. Some of the men did not even recognize the trichinæ when preparations were made for them and placed under the microscope. The eyesight was so poor in some cases that the inspectors "voluntarily" resigned. Of 1,397 inspectors, only 850 were able to stand their reexamination. But these statements can scarcely be believed unless the original words are quoted. The original is as follows:

P. 45. "Wenngleich angenommen werden dürfte, dass die Durchführung der neüen Polizei-Verordnung bei den bereits auf Grund der Polizei-Verordnung vom 12. Dezember 1865 concessionirten Fleischbeschauern auf nennenswerthe Schwierigkeiten nicht stossen würde, so liessen doch die ersten Prüfungen schon erkennen, dass die bisherigen Fleischbeschauer ihrer Aufgabe im Allgemeinen nicht gewachsen waren und dass thatsächlich Mängel bestanden, welche die Wiederkehr ähnlicher Katastrophen wie in Hedersleben, Harsleben und jüngst in Emersleben zu förden geeignet waren. Dahin gehörten vor allen Dingen die fast ausnahmslos absolut ungenügenden Mikroskope, die entweder ihrer Form nach Spielzeugen glichen oder äusserst primitive Construction zeigten, oder aber durch ihren längeren Gebrauch und durch ihre nachlässige, höchst unsaubere Behandlung längst schon eines vollständigen Ersatzes bedurften.

"Für diese Mängel konnten jedoch nicht nur die allerdings nothwendigen Sparsamkeitsrücksichten der in den meisten Fällen in nur dürftigen Verhältnissen lebenden Fleischbeschauer verantwortlich gemach werden, es hat vielmehr in verschiedenen Fällen Schwierigkeiten bereitet die betreffenden Fleischbeschauer von der Unzulänglichkeit und absoluten Unbrauchbarkeit ihrer Mikroskope zu überzeugen, weil ein grosser Anzahl Fleischbeschauer Trichinen thatsächlich zum ersten Male bei der hier in Rede stehenden Nachprüfung kennen gelernt hat.

"Im Weiteren wurden von einem nicht geringen Theil dieser alten Fleischbeschauer Quetschpräparate geliefert, welche keinen Zweifel darüber liessen, dass diese Prüflinge auch keine Ahnung vom Mikroskopiren hatten. Es erregte deshalb auch kein Aufsehen mehr, als verschiedene der alten Fleischbeschauer keine Trichinen erkannten, obwohl diese in dem anderweit angefertigten und ordnungsmässig unter das Mikroskop gebrachten Präparat unzweideutig hervortraten und auch von Laien ohne Mühe gesehen wurden. Ein alter, in der Nachprüfung durchgefallener Fleischbeschauer hat im Prüfungstermin sogar erklärt, das Vorhandensein von Trichinen noch bezweifeln zu müssen.

"Bei einigen Prüflingen wurde während der Prüfung eine so hochgradige Einschränkung des Sehvermögens wahrgenommen, dass die betreffenden Personen auf Vorhalt erklärten, die Functionen eines Fleischbeschauers freiwillig niederlegen zu wollen und ist es nur in einem Falle zur förmlichen Einleitung des Concessions-Entziehungs-Verfahrens gekommen."

Page 46: "Von den 1,397 alten Fleischbeschauern, welche zur Ablegung der Nachprüfung aufgefordert worden sind haben nur 850 die Prüfung bestanden, während die übrigen theils schon vor der Prüfung, theils nach wiederholter erfolgloser Nachprüfung, die ihnen auf Grund der Polizei-Verordnung vom 12. Dezember 1865 ertheilte Concession, mit Ausnahme einiger Fälle, freiwillig zurückgetreten haben. Aber auch von den in der Nachprüfung bestandenen Personen haben mehr als die Hälfte erst nach erfolgreicher Wiederholung der Prüfung in den Besitz des Fähigkeitszeugnisses für die Fortsetzung des Gewerbetriebes als Fleischbeschauer gelangen können. Im Wesentlichen war die vorgeschriebene Nachprüfung der hier in Rede stehenden Fleischbeschauer im October 1888 beendet. Bis dahin haben auch 232, zur Ausübung des Gewerbebetriebes als Fleischbeschauer überhaupt noch nicht berechtigte Personen die Prüfung bestanden, zu deren Ablegung dieselben sich behufs Neubestellung als Fleischbeschauer freiwillig gemeldet hatten. Auch die

Mehrzahl dieser Personen konnte erst nach einer einmaligen Wiederholung der Prüfung das Fähigkeitszeugniss ertheilt werden, während noch andere Prüfungskandidaten sich auch einer wiederholten Prüfung erfolglos unterzogen haben. * * * Bezüglich der Zulassung von Frauen zur Ansübung des Gewerbebetriebes als Fleischbeschauer sind bisher im Allgemeinen nur gute Erfahrungen gemacht; namentlich sind die Frauen zum Prüfungstermin mit seltenen Ausnahmen besser vorbereitet erschienen als die männlichen Prüflinge."

With an official report like this before us, it can scarcely be maintained that the infrequency of outbreaks (5) up to October, 1888, was due to the microscopic inspection.

Marienwerder .... 333 cases, 15 deaths.

No local official health reports are accessible for the years 1881, 1895–1898. No cases have been found for the years 1882 (Pianka, 1884, p. 25); 1891–1894 (Barnick, 1897, pp. 214, 215); 1895.

1881, 3 cases, 0 death. Source known, details regarding inspection not given.

1883, 59 cases, 1 death. Details not in my notes.

1884, 34 cases, 5 deaths. Ten cases, 1 death, due to uninspected meat; source of 24 cases, 4 deaths not traced.

1885, 32 cases, 0 death. No details published.

1886, 20 cases, 1 death. Three cases, 1 death, due to inspected meat; source of 3 cases probably traced, details regarding inspection not known; data regarding 14 cases not found.

1887, 6 cases, 2 deaths. Due to uninspected meat.

1888, 16 cases, 3 deaths. Fourteen cases, 3 deaths, due to uninspected meat; details regarding 2 cases not found.

1889, 12 cases, 0 death. Four cases due to inspected meat; 3 cases to uninspected meat; details of 5 cases not collected.

1890, 5 cases, 0 death. Due to uninspected meat.

1896, 14 cases, 1 death. Source of infection known in 11 cases; details of 3 cases, 1 death, not given.

1897, 98 cases, 2 deaths. Eighty-eight cases, 2 deaths, due to inspected meat; 10 cases to uninspected meats.

1898, 34 cases, 0 death. Due to inspected meat.

[1899, 6 cases, 0 death. Details incomplete or not given.]

Thus of the 333 cases, 15 deaths (1881–1898), 3 cases (of known source) occurred before the year 1883; 184 cases, 12 deaths, during 1883–1891; 146 cases, 3 deaths, during 1892–1898. Of the latter 146 cases, 3 deaths, 122 cases, 2 deaths, were due to inspected meat; 10 cases, to uninspected meat; 11 cases were of known origin, but details regarding inspection are incomplete. The origin of 3 cases, 1 death, is not given. Of the total 187 cases, 12 deaths, during 1881–1891, 38 cases, 6 deaths, were due to uninspected meats; 24 cases, 4 deaths, were not traced; source was known for 6 cases, but details regarding inspection are not given; the details of 112 cases, 1 death, are lacking.

Not a single case has been alleged to be due to American pork.

Merseburg .... 651 cases, 14 deaths.

No official reports are accessible for the years 1895–1898. No cases have been found for the years 1887 (Wolff, 1890, p. 85); 1890, 1892, 1894 (Wolff & Penkert, 1896, p. 131); 1896–1898. The following statistics have been gathered:

1881, 148 cases, 1 death. All due to inspected meat.

1882, 7 cases, 0 death. All due to inspected meat.

1883, 40 cases, 0 death. At least 32 cases, probably all, due to inspected meat.

1884, 91 cases, 12 deaths. Eighty-eight cases, 12 deaths, due to inspected meat; details insufficient regarding other 3 cases.

1885, 29 cases, 0 death. Six cases due to inspected meat; 23 cases not definitely traced.

1886, 15 cases, 0 death. All apparently due to inspected meat.

1888, 6 cases, 0 death. All due to inspected meat.

1889, 69 cases, 0 death. Fifty-five cases apparently due to inspected meat; source of 14 cases could not be traced.

1891, 3 cases, 0 death. Details insufficient.

1893, 1 case, 0 death. Statements indefinite, but source apparently traced.

1895, 242 cases, 1 death. Source traced; meat may or may not have been inspected.

Important details are lacking. Of the 651 cases, 14 deaths, 155 cases, 1 death, occurred prior to the 1883 exclusion decree, but are all accounted for as being due to inspected meat; hence the source was known; 253 cases, 12 deaths, occurred during the years of exclusion (1883–1891); of these, it appears that 210 cases, 12 deaths, were apparently due to inspected meat; 14 cases could not be traced to the source of infection; details regarding 29 cases are insufficient. Since the decree of readmission (1892–1898) 243 cases, 1 death, are recorded; 242 cases, 1 death, were traced to a lot of several hogs, only one of which was inspected; 1 case was apparently traced, but the statements are somewhat indefinite.

Not a single case has been attributed to American pork.

Minden .... 0 case, 0 death.

No Bezirk health reports are accessible for the years 1895–1897. No cases of trichinosis have been found for the years 1881–1885 (Schultz-Hencke, 1883, 1884, p. 58; 1887, p. 73); 1886–1897 (Rapmund, 1892, p. 106; 1894, pp. 101, 133; 1897, pp. 95, 103). During 1889–1891, 16 microscopists, and during 1892–1894, 19 microscopists were found so deficient in their work and showed such ignorance in their reexamination that their authorizations were revoked.

Münster .... 1 case, 0 death.

No official district sanitary reports are accessible for the years 1892–1897. No cases of trichinosis have been found for the years 1882–1897; for 1882, see Hoogeweg, 1883; for 1883–1885, see Hölker, 1887, p. 51; 1886–1888, see Kölker, 1890, p. 80; 1889–1891, see Kölker, 1894, p. 66. The only case found is one recorded for 1881; the disease was contracted in R.-B. Arnsberg.

Oppeln .... 25 cases, 0 death.

Official Bezirk sanitary reports for the years 1895–1898 are not accessible. Up to 1876 no cases of trichinosis were known in this district (Pistor, 1882, p. 32); 3 cases in 1876; several in 1878. No cases have been found for the years 1877, 1879, 1880 (Pistor, 1882, p. 32); 1881–1883 (Noack, 1883, 1884, 1887, p. 102); 1886, 1888–1891 (Schmidtmann, 1893, p. 56); 1892–1894 (Roth, 1896, p. 108); 1895–1896, 1898. The only statistics gathered are:

1884, 3 cases, 0 death. Details not given.

1885, 16 cases, 0 death. Thirteen cases from "Polish sausage;" details regarding inspection not given.

1887, 3 cases, 0 death. Due to meat which was probably inspected.

1897, 3 cases, 0 death. Details not given.

Thus of 25 cases, 0 death, 22 cases are reported for the years of exclusion (1883–1891) of American meats. One outbreak (?3 cases) is reported since 1891, but no details are accessible. Of the 25 cases, 13 were due to "Polish sausage," but no details are given regarding inspection; 3 cases were apparently due to inspected meats; details for 6 cases are lacking.

That Oppeln does not owe its comparative freedom from trichinosis entirely to its trichina inspection may be concluded from the official criticisms. Compare, for instance, the following extracts:

"Auch das Ergebniss der Fleischbeschau vom Jahre 1881 liefert den Beweis, dass sich die obligatorische Schweinefleischschau im hiesigen Bezirk bewährt hat; sie würde jedenfalls noch günstiger sein, wenn die Untersuchungen durch die Fleischbeschauer in zuverlässigerer Weise vorgenommen würden, was leider bisher nicht der Fall gewesen ist. Es lässt sich mit Bestimmtheit erwarten, dass die mit Trichinen und Finnen durchsetzten Schweine in noch viel grösserer Zahl aufgefunden werden würden, wenn die Fleischschau in den Händen zuverlässigerer Persönlichkeiten läge, wenn dieselben sorgfältiger untersuchten und ihre Mikroskope mit Umsicht zu handhaben verständen. Wie saumselig manche Fleischbeschauer bei den Untersuchungen verfahren, lässt sich aus dem einen Beispiel erkennen, dass in einem Orte des hiesigen Bezirkes ein von 2 Fleischern gemeinschaftlich geschlachtetes Schwein von 2 Fleischbeschauern untersucht wurde: der eine derselben hatte in der ihm übergebenen Hälfte des geschlachteten Schweines reichlich Trichinen gefunden, der andere erklärte seine Hälfte für völlig trichinenfrei; die Nachrevision ergab aber, dass das qu. Schwein in der That reichlich mit Trichinen durchsetzt war."—*Noack, 1883, p. 41.*

Veröff., 1894, p. 64, mentions an instance where a hog was passed as free from trichinæ. Later examination showed it to be trichinous.

"Die Wahrnehmung, dass die Trichinenschau nicht durchweg in geeigneter Weise ausgeführt wurde und dass sich im Laufe der Jahre erhebliche Misstände ausgebildet hatten, gaben dem Herrn Regierungs-Präsidenten Veranlassung, Erhebungen über die Trichinenschau im Regierungsbezirk anzustellen und auf Grund der eingegangenen Berichte durch die anliegende Verfügung vom 16. Februar 1891 die regelmässige Nachprüfung der Fleischbeschauer anzuordnen und die Beaufsichtigung derselben zu regeln.

"Der Ausfall der von den Kreisphysikern vorgenommenen ersten Nachprüfungen war ein so ungünstiger, dass es im öffentlichen Gesundheitsinteresse geboten erschien, die Nachprüfungen im ersten Jahre nicht bloss auf ⅓, sondern alsbald auf sämmtliche Fleischbeschauer zu erstrecken."—*Schmidtmann, 1893, p. 95.*

"Während den beiden folgenden Jahren (1893, 1894) vorschriftsmässig jedes mal je ein Drittel der sämmtlichen Beschauer zur Nachprüfung gelangte, im Allgemeinen hat die Trichinenschau in dem abgelaufenen dreijährigen Zeitraum zu erheblichen Erinnerungen nicht Anlass gegeben. Von den Nachgeprüften durchschnittlich 3% den an dieselben in praktischen Beziehung zu stellenden Forderungen nicht; in diesen Fällen wurde die Prüfung alsbald wiederholt. In Fällen, wo auch die zweite Nachprüfung nicht genügte, wurde die Entlassung des betreffenden Fleischbeschauers in die Wege geleitet. Beanstandungen der Instrumente, die in jedem Falle alsbald beseitigt wurden, kamen nur in geringer Zahl vor."—*Roth, 1896, p. 108.*

Osnabrück .... 0 case, 0 death.

No local health reports are accessible for the years 1881, 1882, 1892–1898. No cases have been found for this district in any reports for 1883–1894. (Bitter, 1888; 1891; 1893; 1894, p. 27); 1895–1898.

Posen .... 219 cases, 21 deaths.

Official local health reports are lacking for the years 1895–1898. No cases have been found for the years 1883, 1885 (Gemmel, 1887, p. 14); 1888 (Dieterich, 1891, p. 139). The following statistics have been gathered:

1881, 20 cases, 0 death. Apparently all due to inspected meat.

1882, 5 cases, 1 death. May have been due to inspected meat; not certain; case not definitely explained.

1884, 10 cases, 0 death. Hog not inspected.

1886, 4 cases, 0 death. Source traced; details regarding inspection not given.

1887, 9 cases, 5 deaths. Source of 6 cases, 3 deaths, traced; details regarding inspection not given; details lacking for 3 cases, 2 deaths.

1889, 11 cases, 2 deaths. Eight cases due to inspected meat; 3 cases, 2 deaths, to uninspected meat.

1890, 16 cases, 0 death. Details lacking.

1891, 24 cases, 4 deaths. Six cases, 1 death, due to inspected meat; source of 2 cases not traced; details of 16 cases, 3 deaths, lacking.

1892, 31 cases, 2 deaths. Four cases, 1 death, due to uninspected meat; source of 27 cases, 1 death, apparently traced, but details regarding inspection are lacking.

1893, 3 cases, 0 death. Details not given.

1894, 51 cases, 5 deaths. At least 22 cases, 1 death, due to inspected meat; 7 cases, 1 death, due to uninspected Russian meat; 3 cases, 1 death, due to condemned meat; 3 cases, 2 deaths, due to meat known to be trichinous; source of 3 cases known; no details given regarding inspection; source of 13 cases not traced.

1895, 23 cases, 2 deaths. Eight cases, 1 death, due to inspected meat; 11 cases, 1 death, due to meat smuggled away from the inspection; details of 4 cases lacking.

1896, 7 cases, 0 death. Five cases due to inspected meat; 2 cases due to condemned meat.

1897, 3 cases, 0 death. Due to condemned meat.

1898, 2 cases, 0 death. No details given.

Thus, of a total of 219 cases, 21 deaths, 25 cases, 1 death, occurred before the 1883 decree, but none of them were attributed to American meats; 20 cases were apparently due to uninspected meat; 5 cases, 1 death, not definitely established, although source of meat was known. During the exclusion of American pork, 74 cases, 11 deaths, are reported. Of these, details are lacking for 35 cases, 5 deaths; 14 cases, 3 deaths, were due to inspected meat; 13 cases, 2 deaths, were due to uninspected meat; the source of 10 cases, 3 deaths, was known, but details regarding inspection are not in my notes; 2 cases were not traced.

Since the readmission of American pork (1892–1898), 120 cases, 9 deaths, have occurred, but not one of them has been attributed to American meat; 35 cases, 2 deaths, were due to inspected meat; 8 cases, 1 death, to condemned meat; 3 cases, 2 deaths, to meat known to be trichinous; 11 cases, 1 death, to meat smuggled away from the inspection; 7 cases, 1 death, to uninspected Russian meat; source of 30 cases, 1 death, known, but details regarding inspection lacking in my notes; 9 cases given without details; 13 cases not traced to source of infection; 4 cases, 1 death, due to uninspected meat.

The following extracts from official reports are instructive:

"Diese Angaben beweisen indess, dass eine absolute Zuverlässigkeit durch das Fleischauwesen nicht vorhanden ist. Einerseits erscheint es geboten, die Beaufsichtigung der Fleischbeschauer zu verschärfen, wie bereits in dem vorigen Sanitätsbericht betont worden ist.

"Die Regelung der Angelegenheit fällt in die nächste Berichtsperiode. Andererseits erscheint die Frage gerechtfertigt, ob nicht die Gefahr der Trichinenerkrankung der Menschen wesentlich herabgemindert werden kann, wenn die Herstellung von Wurst aus ungekochtem Schweinefleisch beziehentlich die Zubereitungen aus Schweinefleisch zum Rohessen (Hackfleisch) bezw. der Genuss des rohen Schweinefleisches durch Polizei-Reglement untersagt würden. Diese Volksunsitte des Genusses roher Wurst und rohen Schweinefleisches wird trotz aller Bemühungen der Trichinenschau noch viele Erkrankungen und Todesfälle der Menschen an der Trichinose verursachen.—Von einer thierärztlichen Bekämpfung der Ursachen der Verbreitung der Trichinose der Schweine hat sich bis jetzt nichts verlauten lassen. Allerdings können an eine bessere Haltung der Schweine, in Bezug auf Ernährung und Unterbringung, unter hiesigen Verhältnissen um so weniger grössere Anforderungen gestellt werden, als die Besitzer dieser nützlichen, Fleisch und Fett liefernden Thierklasse, soweit sie nicht dem Stande der Grossbesitzer angehören, mit den Sorgen für die eigene Unterbringung und Ernährung hart genug geplagt sind. Angesichts der Thatsache, dass der Bezirk jährlich eine Summe von mehr als 150,000 Mark für die in ihren Resultaten immer noch einen unsicheren Schutz gewährende Trichinenschau opfern muss, ist vom nationalökonomischen Standpunkte gerechtfertigt, Wege und Mittel zu ersinnen und einzuleiten, um das Uebel wirksamer an der Wurzel anzufassen und auszurotten. (Belehrungen, Verbesserung der Schweinezucht, Prämiirung musterhafter Zucht- und Mastanstalten des kleinbäuerlichen Betriebes.)

"Eine allgemeine obligatorische Fleischschau ist im Regierungs-Bezirk noch nicht eingeführt. Die mikroskopische Fleischschau ist am vollkommensten in denjenigen Gemeinden durchgeführt, welche öffentliche Schlachthaus-Einrichtungen besitzen."—*Géronne, 1894, p. 123.*

Potsdam .... 158 cases, 1 death.

Official local health reports are not accessible for the years 1895–1898. No cases have been found for the years 1882 (Kanzow, 1884); 1885 (Kanzow, 1887, p. 76); 1889–1890 (Kanzow, 1893); 1893–1894 (Kanzow, 1897); 1896–1898. The following cases have been collected:

1881, 5 cases, 0 death. Two cases due to eating meat before result of inspection was known; in 3 cases the meat could not be traced.

1883, 8 cases, 0 death. All due to uninspected meats.

1884, 59 cases, 1 death. Five cases due to inspected pork; 11 cases due to uninspected meat; source of 42 cases, 1 death, apparently known, but no details given regarding inspection; details lacking in 1 case.

1886, 5 cases, 0 death. Source of 3 cases known, but details regarding inspection not given; details regarding meat in 2 cases not known.

1887, 1 case, 0 death. Due to uninspected meat.

1888, 18 cases, 0 death. Eleven cases due to inspected meat; source of 7 cases known, but details regarding inspection not given.

1891, 1 case, 0 death. Source known; details regarding inspection not given.

1892, 40 cases, 0 death. Details not given.

1895, 21 cases, 0 death. Source known; it is not determined whether the hog was smuggled away from the inspection or not.

Thus, of 158 cases, 1 death, 5 cases occurred before the 1883 decree. In 3 of these cases the meat could not be traced; 2 cases were due to meat eaten before results of the inspection were known. During the years of exclusion, 92 cases, 1 death, were reported. Twenty of these were due to uninspected meat; 16 to inspected meat; source was known for 53 cases, 1 death, but details regarding inspection lacking; details unknown in 2 cases and lacking in 1 case. Since the readmission of American pork, 61 cases have been reported. Details of 40 cases are not given; 21 cases were traced to source of infection, but it is not established whether or not the hog was smuggled away from the inspection. No cases have been traced to American meat.

The following extract from official reports may be noted:

> "Zu diesen Untersuchungen waren in den 3 Berichtsjahren bezw. 1672, 1709, 1721 Fleischbeschauer bestellt und im Jahre 1894 nur in 3 Forstrevieren des Kreises Oberbarnim, einem Gutsbezirk und einer Oberförsterei des Kreises Ostprignitz, 3 Amtsbezirken des Kreises Ruppin und 4 Gutsbezirken im Kreise Templin keine Fleischbeschauer vorhanden. In letzterem Kreise mussten sich im Jahre 1894 auf Anordnung des Landraths sämmtliche Fleischbeschauer einer Nachprüfung durch den Kreisphysikus unterziehen und wie nothwendig dieses war, ergab sich daraus, dass mehrere Fleischbeschauer das Amt sofort niederlegten, mehrere die Nachprüfung nicht bestanden und einige Mikroskope sich als schadhaft [p. 134] und unbrauchbar erwiesen. Demnach dürfte die häufigere Wiederholung solcher Nachprüfungen dringend nöthig sein, um die Trichinenschau (einigermassen) vertrauenswürdig zu erhalten."—*Kanzow, 1897, pp. 133, 134.*

Schleswig-Holstein .... 24 cases, 1 death.

Local official sanitary reports are not accessible for the years 1895–1898. No cases have been found for the years 1881–1885 (Bockendahl, 1882, p. 19; 1883, p. 13; 1887, p. 153); 1887–1894 (Bockendahl, 1889, p. 105; 1893); 1895–1898. The following cases have been collected:

1886, 20 cases, 1 death. Four cases due to meat used before inspector reported; 16 cases, 1 death, due to uninspected meat.

1888, 4 cases, 0 death. Source known; details regarding inspection not given.

Thus the only cases collected for 1881–1898 occurred during the exclusion of American meats; source known in all cases. See also p. 42.

Bockendahl (1893, p. 114) remarks upon the objection to the general trichina inspection as follows:

"Gegen die zwangsweise Trichinenschau sträubt sich die Provinz durchaus, weil sie, wie nach den Volksgewohnheiten erklärlich, das Leiden einer Trichinenerkrankung bei Massen noch nicht kennen gelernt hat."

Sigmaringen .... 0 case, 0 death.

The official district health reports are not accessible for the years 1889–1891, 1895–1898. According to Koch (1883, p. 61) no cases were known in 1881 or earlier. No cases were found for the years 1882–1885 (Koch, 1887); 1886–1888 (Lauchert, 1890, p. 52); 1889–1891, 1892–1894 (Schmidt, 1897, p. 71); 1895–1898. Koch (1883, p. 61) remarks:

"Was nun speciell die Trichinenfrage betrifft, so ist in den Hohenzollernschen Landen nie ein Fall von derartiger Erkrankungen vorgekommen und scheint uns in der That die Gefahr für die hiesige Bevölkerung nicht vorhanden zu sein so lange die Gewohnheit, das Schweinefleisch, frisch wie geräuchert, nur in gekochtem Zustande zu geniessen, fortbesteht. Sollte aber in den Städten, wie dies für die beiden grösseren: Sigmaringen und Hechingen, den Anschein hat, die Sitte, rohen (meist westphälischen) von aussen bezogenen Schinken im Ausschnitt zu verkaufen, um sich greifen, so wäre dadurch wenigstens die Möglichkeit des Ausbruches dieser Krankheit auch hier gegeben."

Stade .... 0 case, 0 death.

Official district sanitary reports are not accessible for the years 1895–1898. No cases of trichinosis have been found for the years 1881–1898.

That the freedom of Stade from trichinosis has not been entirely due to the trichina inspection will be gathered from the following extracts from the official reports. It will be noticed that the inspection was ordered in 1877, and that its introduction met with considerable opposition from the people; that twenty years later (1897) it had not been possible to carry it out in all places.

"Zwei trichinös befundene amerikanische Speckseiten resp. Schinken waren von Hamburger Trichinenuntersuchern für trichinafrei erklärt worden, obgleich bei den Nachrevisionen die Parasiten zahlreich genug angetroffen wurden, um sie bei aufmerksamer Untersuchung nicht übersehen zu können."—*Bohde, 1883a, p. 27.*

"Der Durchführung der durch eine Polizeiverordnung vom 12. December 1877 angeordneten Fleischbeschau in allen Gemeinden stehen noch immer erhebliche Schwierigkeiten dadurch entgegen, dass die Landbevölkerung die Fleischbeschau für vollkommen überflüssig hält und den mit derselben verbundenen Weiterungen und Kosten sich zu entziehen sucht, indem sie diejenigen Personen, welche geneigt sind, als Fleischbeschauer sich ausbilden und anstellen zu lassen, hiervon zurückhält, sowie den Angestellten den Dienst möglichst verleidet.

"Im Amte Verden z. B., wo bislang noch überall keine Fleischbeschau stattfindet, war es den Bemühungen des Kreishauptmanns gelungen, in 6 Gemeinden Personen zur Ausbildung als Fleischbeschauer zu veranlassen, indessen zogen alle, um nicht in Feindschaft mit ihren Gemeindegenossen zu gerathen, ihre Anträge auf Anstellung wieder zurück, oder liessen wiederholte Aufforderungen zur Vorlage ihrer Qualificationszeugnisse unbeachtet.

"Die auf Anregung der Landdrostei seitens der Obrigkeiten, in deren Bezirken die allgemeine Fleischbeschau noch nicht obligatorisch geworden war, im Berichtsjahre

erneuten Versuche, zu Fleischbeschauern geeignete Personen ausfinding zu machen, sind in den Ämtern Himmelpforten und Bremervörde von bestem Erfolge gewesen und haben die Einführung der Fleischbeschau in der Mehrzahl der Gemeinden zur Folge gehabt. Im erstern Amte sind nur noch 11, im zweiten noch 9, im Amte Neuhaus noch 7 Gemeinden rückständig geblieben. Im Stader Marschkreise wird die Fleischbeschau bereits im ganzen Bezirke ausgeübt. Auch in den Ämtern Lehe und Zeven sind im Berichtsjahre 18 bezw. 17 Fleischbeschauer neu angestellt worden. Die im Stadtbezirke Buxtehude bislang nur rücksichtlich der von Gewerbetreibenden geschlachteten Schweine in Anwendung gebrachte Fleischbeschau wurde auf sämmtliche geschlachtete Schweine ausgedehnt.

"Es darf daher gehofft werden, dass, wenn die Obrigkeiten sich der Sache annehmen und die gegen die Fleischbeschau in Scene gesetzten Agitationen und Beschwerden sich als erfolglos erwiesen haben, die vollständige Durchführung der Massregel für den ganzen Landdrosteibezirk in nicht zu langer Zeit zu erreichen sein wird."—*Bohde, 1883b, p. 28.*

P. 120: "Die Durchführung der obligatorischen Fleischbeschau auf Trichinen und Finnen hat in den Bizirken, in welchen dieselbe bislang nicht ausgeübt wurde, wiederum erfreuliche Fortschritte gemacht; seit dem Jahre 1880 hat die Zahl der Fleischbeschauer sich um 125 [p. 121] vergrössert. Auf dem platten Lande wird der Nutzen der Fleischbeschau aber noch immer verkannt und die Massregel als eine das Schweinefleisch vertheuernde Belästigung angesehen.

"In einigen Amtsbezirken hält es daher schwer, zu Fleischbeschauern geeignete Personen zu finden; die Bevölkerung sucht solche auf jede Weise davon zurückzuhalten. Im Dorfe Scheessel legte z. B. nach dem Berichte des Kreisphysikus ein sehr tüchtiger Fleischbeschauer das Amt nieder, weil die aufgeregten Bauern ihm wiederholt die Fenster einwarfen. Im Amte Verden ist erst nach jahrelangen Bemühungen in einer einzigen Gemeinde die Anstellung eines Fleischbeschauers möglich geworden. Gegen die obligatorische Fleischbeschau beschwerte sich alsbald die Gemeinde unter Hinweisung auf den Umstand, dass auch in der Stadt Verden die Fleischau nur facultativ geübt würde. Ein Grund, der Beschwerde stattzugeben, lag um so weniger vor, als ein in einer Nachbargemeinde gezüchtetes Schwein trichinös befunden worden war. Dagegen wurde der Magistrat in Verden veranlasst, die Polizei-Verordnung vom 12. December 1877 über die Untersuchung des Schweinefleisches auf Trichinen in Kraft zu setzen.

"Um die Untersuchungsgebühren für die Fleischbeschauer zu ermässigen, schlossen mehrere Gemeinden Contracte, wonach jene statt der amtlich auf 75 Pf. für die Untersuchung eines Schweines festgesetzten Taxe nur 30 bis 40 Pf. erhalten sollten. In der Voraussetzung, dass diese unzureichende Entschädigung die ordnungsmässigen Untersuchungen beeinträchtigen würde, beabsichtigte im Jahre 1883 ein Kreishauptmann die taxmässigen Gebühren von den Besitzern der Schweine im Zwangsverfahren beitreiben zu lassen. Die zuständigen Herren Minister, welchen die Angelegenheit vorgetragen wurde, entschieden dahin, dass die Einziehung der amtlich festgesetzten Gebühr im Wege der administrativen Zwangsvollstreckung unzulässig sei und der Ermässigung der Taxe seitens der Fleischbeschauer, welche nicht als Beamte der Polizei, sondern als Gewerbetreibende anzusehen seien, im Wege des Privatabkommens Nichts entgegenstehe.

"Im Amte Zeven wird nicht unerhebliche Schweinezucht betrieben. Finnen gehören nicht zu den Seltenheiten; ein im Bezirke geborenes Schwein war hochgradig trichinös befunden, man beabsichtigte daher, da die Versuche, Fleischbeschauer anzustellen, in 7 Gemeinden an dem Widerstande der Bewohner gescheitert waren, jene Gemeinden benachbarten 4 bis 8 km entfernten Fleischschau-Bezirken anzuschliessen. Gelegentlich einer dadurch veranlassten Beschwerde bestimmte der Herr Minister, dass die Ausdehnung der obligatorischen [p. 122] Fleischbeschau hinsichtlich der zum Privatgebrauche geschlachteten Schweine nur auf solche

Gemeinden in Aussicht zu nehmen sei, in denen der bestellte Fleischbeschauer den Betheiligten ohne allzugrosse Belästigung zugänglich wäre.

"In der Stadt Bremervörde beantragten die vorhandenen 9 Schlachter, um die auf 1 M. festgesetzten Gebühren herabzudrücken,, die Anstellung eines besonderen Fleischbeschauers, welcher jedes von den Schlachtern geschlachtete Schwein für eine Gebühr von 50 Pf. untersuchen sollte. Da die vorhandenen 3 Beschauer dem Bedürfnisse schon reichlich genügten, übrigens die in Aussicht genommene Persönlichkeit für das Amt durchaus ungeeignet war, so wurde der bereits vom Magistrate abgewiesene Antrag auch von der Landdrostei abgelehnt und die Entscheidung in der Ministerialinstanz bestätigt."—*Bohde, 1887, pp. 120–122.*

"Wegen ungenügender Kenntnisse mussten 20 Fleischbeschauer die Nachprüfungen wiederholen, 9 wurden wegen Unbrauchbarkeit oder grober Pflichtverletzung aus dem Amte entlassen. Wegen Ueberschreitung der zulässigen Zahl von 6 an einem Tage untersuchten Schweine, unordentlicher Listenführung und dergl. wurden mehrfach Bestrafungen erforderlich.

"Allgemein sprechen die Physiker sich für die Nothwendigkeit der Nachprüfungen aus, besonders auch mit Rücksicht auf die Beschaffenheit der Mikroskope, mehrfach bot sich Gelegenheit, die Fleischbeschauer vor der Uebernahme des Amts von dem Ankauf billiger und schlechter Instrumente zurückzuhalten. Der Physikus des Kreises Jork hat die empfehlenswerthe Einrichtung getroffen, dass Personen, die sich als Fleischbeschauer ausbilden lassen wollen, vorher stets seinen Rath wegen Beschaffung eines Mikroskops in Anspruch zu nehmen haben. Er empfiehlt die von Leitz in Wetzlar zum Preise von 45 Mark bezogenen Instrumente als vorzugsweise für den Zweck brauchbar.

"Unter Hinweisung auf die Belästigungen und Kosten, welche für die Fleischbeschauer und das Publikum dadurch entstehen, dass die Nachprüfungen der Fleischbeschauer am Wohnsitze des Kreisphysikus abgehalten werden und hierdurch einzelne Fleischbeschauer zu mehrtägigen Reisen genöthigt werden, beantragte ein Physikus die Erlaubniss, die Nachprüfungen ausser an seinem Wohnsitze auch an bestimmten anderen Orten des Kreises abhalten zu dürfen. Von dem Herrn Minister wurde das Gesuch abschlägig beschieden, weil eine Behinderung der Fleischbeschau nicht zu befürchten sei, wenn die Nachprüfungen nicht während der Schlachtperiode vorgenommen würden und weil zu einer Ausnahme von der Regel, dass der zu Prüfende den Kreisphysikus aufzusuchen habe, Veranlassung nicht vorliege.

"Während des Berichtszeitraums sind fünf Schweine trichinös befunden, zwei derselben waren in Verden von Ackerbürgern in Ställen aufgezogen worden, aus denen auch im Jahre 1885 drei trichinöse Schweine hervorgegangen waren. Ein in Ottersberg, Kreis Achim, geschlachtetes Schwein, welches krankhafte Erscheinungen gezeigt hatte, war in einem benachbarten Moordorfe aufgezogen worden, trotz sorgfältiger Untersuchung wurden bei den übrigen Thieren, welche mit dem kranken dieselben Ställe bewohnt hatten, Trichinen nicht gefunden.

"Die Befunde der Fleischbeschauer wurden von dem zuständigen Kreisphysikus bestätigt, in einem Falle lag eine Verwechselung von [p. 129] lebhaft sich bewegenden Nematoden mit Trichinen vor; auf welche Weise die Würmer in das Fleisch gelangt waren, liess sich nicht feststellen."—*Bohde, 1890, pp. 128–129.*

"Die Ergebnisse der Nachprüfungen, deren vortheilhafter Einfluss auf die Zuverlässigkeit der Untersuchungen besonders anerkannt wird, sind im Allgemeinen befriedigend ausgefallen. Wegen ungenügender Kenntnisse mussten in jedem Jahre 3 bis 7 Fleischbeschauer die Prüfung wiederholen, 6 wurden wegen Unbrauchbarkeit entlassen, oder legten das Amt freiwillig nieder. Wegen unordentlicher Führung der Listen über ihre Thätigkeit und wegen Ueberschreitung der zulässigen Zahl von 6 an einem Tage untersuchten Schweine erfolgten einige Bestrafungen. Gegen einen Fleischbeschauer in Geestemünde wurde eine Polizeistrafe von

30 M. festgesetzt, weil er ½ Jahr lang die Führung der Listen unterlassen hatte. Die hiergegen angerufene Entscheidung des Schöffengerichts fiel gegen ihn aus, während die Strafkammer des Landgerichts in Verden ihn freisprach.

"Die Beschaffenheit der Mikroskope der Fleischbeschauer gab mehrfach zu Ausstellungen Anlass, sowohl die Instandhaltung an sich brauchbarer, als auch die Benutzung billiger und schlecht [p. 145] eingerichteter Instrumente. Bei der geringen Vergütung, die manche Fleischbeschauer trotz der amtlich festgesetzten, angemessenen Taxen für die Untersuchungen erhalten, erklärten sich dieselben mehrfach ausser Stande, bessere Mikroskope aus eigenen Mitteln anzuschaffen. Nur ausnahmsweise lässt die Gemeinde sich zu eine Beihülfe für solchen Zweck herbei, es wird daher erklärlich, wenn manchmal die Anforderungen an die Brauchbarkeit der Mikroskope bei den Nachprüfungen niedrig gestellt werden."—*Bohde, 1893, pp. 144, 145.*

"Ungeachtet der fortwährend darauf gerichteten Bemühungen ist es noch immer nicht gelungen die Polizeiverordnung vom 12. December 1877 (vergl. 4. Generalbericht) betreffend die Untersuchung des Schweinefleisches auf Trichinen und Finnen, in allen Gemeinden zur Durchführung zu bringen. Im Geestkreise Bremervörde, besonders aber im Nachbarkreise [p. 129] Zeven wussten sich einzelne Gemeinden bisher der Massregel zu entziehen. Im Kreise Zeven haben die fortgetzten Bemühungen des Kreisphysikus und des Landraths endlich den Erfolg gehabt, dass bis zum Ende des Jahres 1894 im Kreise 18 Fleischbeschauer angestellt waren. Mehrfach wurden Gemeinden, in denen für das Amt geeignete Personen angeblich nicht zu finden waren, benachbarten Schaubezirken angeschlossen. In manchen Orten wird der Mangel an geeigneten Fleischbeschauern anscheinend durch die geringen Gebühren verursacht, die den Beschauern zugebilligt sind. In der That muss das immerhin verantwortungsvolle Amt wenig verlockend erscheinen, wenn der Fleischbeschauer für die Untersuchung eines Schweines 50 Pfg. erhält und dafür auch noch Entfernungen bis zu mehreren Kilometern zurückzulegen hat.

"Im Jahre 1892 wurden unter amerikanischen Speckseiten, die mit der in der Kaiserlichen Verordnung vom 3. September 1891 vorgeschriebenen amtlichen Bescheinigung über die stattgehabte Untersuchung versehen waren, in 3 Fällen Trichinen gefunden. Der Umstand gab Veranlassung, die Bestimmung im § 2 der oben genannten Polizeiverordnung in Erinnerung zu bringen *mit Hinweisung darauf, dass der amtliche Nachweis der amerikanischen Behörden über die Unschädlichkeit der Fleischwaaren nur die Erlaubniss zur Einfuhr derselben bedinge.*[1] * * *

"Eine Fleischbeschauerin in Verden fand lebende Würmer, welche sie für Trichinen hielt, in den Augenmuskeln eines Schweines, aber nicht in anderen Muskeln desselben Thieres. Der Kreisphysikus hielt die Würmer nicht für Trichinen, obwohl sie mit solchen grosse Aehnlichkeit hatten, und veranlasste eine Nachprüfung in der Königlichen thierärztlichen Hochschule in Hannover. Hier stellte Professor Bötcher fest, dass es sich um Rhabditiden handelte, von der sehr schwierigen Bestimmung der Species sah derselbe ab. Aus der Literatur war ihm kein Fall bekannt, dass Rabditiden[2] in den Augenmuskeln des Schweines beobachtet seien."—*Rusak, 1897, pp. 128, 129.*

That a district which appears never to have reported a case of trichinosis in man should be subjected to all the trouble and worry mentioned in these extracts can hardly fail to give rise to serious reflections among hygienists as to the justification of compelling the expenditure of so much money and effort in enforcing upon the

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[1] Italics not in the original. See above, p. 17.

[2] These worms were probably introduced into the preparation by the water used. Several such cases are known.—C. W. S.

unwilling inhabitants a hygienic measure which is admittedly an uncertain protection against the disease it is intended to prevent.

Stettin .... 18 cases, 0 death.

No district reports are accessible for the years 1895–1898. No cases have been found for the years 1882 (Weiss, 1884); 1883–1884 (Dieterich, 1887, p. 137); 1886–1890, 1892–1894 (Katerbau, 1890, p. 109; 1893, p. 94; 1896, p. 108). The following cases have been collected:

1881, 4 cases, 0 death. Apparently due to inspected meat.
1885, 5 cases, 0 death. Probably due to condemned meat.
1891, 8 cases, 0 death. Source known. Details regarding inspection not given.
1898, 1 case, 0 death. Details not given.

Thus 13 cases were recorded for the nine years of exclusion, and 1 case for the seven years since the readmission of American pork.

Stralsund .... 4 cases, 1 death.

No Bezirk health reports are accessible for the years 1895–1898. No cases have been found for the years 1881 (Koehler, 1883); 1883–1885 (Koehler, 1887, p. 85); 1889–1891 (Haselberg, 1894); 1892–1894 (Haselberg, 1898). The only statistics found are:

1882, 3 cases, 1 death. Due to uninspected meat.
1886–1888, 1 case, 0 death. Details lacking.

Trier .... 0 case, 0 death.

Official Bezirk reports for 1895–1898 are not accessible. No cases of trichinosis have been found for the years 1881–1898.

Trichina inspection was required for American and other imported wares by a police order of February 26, 1879, but this order was afterwards repealed. On April 23, 1891, a new decree was issued providing for a general trichina inspection, but this was not received with any amount of enthusiam. It was modified October 8, 1881, freeing house slaughtering, when the meat was intended for use in one's own family, from the inspection. Schwartz (1887, p. 68) refers to the continued opposition raised against the trichina inspection, and states that the Government thought it necessary upon repeated occasions to warn the public against eating raw pork, even when it had been microscopically inspected. In 1894 (pp. 41, 54) Schwartz states that no reexamination of the microscopists and no inspection of the instruments take place because of the expense connected with such revision.

Large quantities of American meats have been consumed in this Bezirk, and Schwartz (1882, pp. 85, 86) admits the claim of the importers in Saarbrücken that the mountain inhabitants and factory hands were able to procure their necessary meat only when American pork was imported. The following quotations from official sanitary reports will be found interesting:

"Angeregt durch die Circular-Erlasse des Königlichen Ministeriums zur Einführung der Untersuchung des Schweinefleisches auf Trichinen war von der Königlichen

Regierung zu Trier am 26. Februar 1879 für den Umfang des Bezirks eine Polizei-Verordnung erlassen worden, welche die [p. 86] Untersuchung des amerikanischen oder des sonst vom Auslande importirten Schweinefleisches und Speckes auf Trichinen und Finnen anordnete, von der des inländischen aber ganz absah. In den meisten Städten kam dieselbe zur Ausführung und wurden im Regierungsbezirke im Jahre 1879–4741 Schweine und Theile von Fleischtheilen untersucht. Es ergab die Untersuchung im Kreise Daun ein trichinöses geschlachtetes Schwein, in den übrigen Kreisen 132 trichinöse amerikanische Schinken und Speckseiten. Sieben Schweine hatten Finnen. Für das Jahr 1880 fehlt eine zuverlässige Angabe.

"In den Städten St. Johann und Saarbrücken stiess dagegen die Einführung der mikroskopischen Untersuchung auf Schwierigkeiten. Mehrere dort ansässige Grosshändler, welche bisher in grösseren Quantitäten amerikanisches Fleisch eingeführt hatten, fanden sich in ihrem Handel durch diese Polizeiverordnung geschädigt und protestirten gegen dieselbe. Ihre Beschwerde wurde von der Handelskammer zu Saarbrücken untertützt. Sie behaupteten wohl nicht mit Unrecht, dass die Bergleute, Hütten- und Fabrikarbeiter, für welche Fleischnahrung ein unabweisbares Bedürfniss sei, erst durch die Einführung des amerikanischen Schweinefleisches und vorzüglich des Speckes wieder in die Lage gekommen seien, eine solche sich verschaffen zu können. Sie führten weiter aus, dass es für sie als Grosshändler ganz unmöglich sei, bei einem Importe von rund 30,000 Centner Schweinefleisch, welcher in ungefähr 142,000 Stücken meist in der Zeit vom März bis September ankomme, jedes Stück untersuchen und mit dem Brennstempel des Fleischbeschauers vor dem Verkaufe versehen zu lassen. Diese Unmöglichkeit verlange aber die angezogene Polizei-Verordnung. Durch dieselbe, behaupteten sie ferner, wurde in kurzer Zeit ihr Handel mit amerikanischen Schweinefleische vernichtet werden, weil sie die weitere Concurrenz dann nicht mehr aushalten könnten. In Folge dieser Vorstellung ordnete der Herr Minister denn auch die Aufhebung jener Regierungs-Verordnung, soweit sie die Grosshändler betraf, an und empfahl die Einführung der Untersuchung des sämmtlichen Schweinefleisches für den Detailhandel. Die obige Polizei-Verordnung wurde deshalb von der königlichen Regierung unter dem 26. Februar 1880 zurückgezogen und gleichzeitig das Publikum vor dem Genusse des nicht vollkommen gar gekochten, des nicht gut gepökelten und geräucherten Schweinefleisches gewarnt."—*Schwartz, 1882, pp. 85, 86.*

"Von einschneidender Wirkung auf den Fleischhandel war die unter dem 23. April 1881 von der Königlichen Regierung angeordnete, obligatorische Untersuchung aller im Bezirke, auch für den Hausbedarf geschlachteten Schweine, wie des von auswärts importirten Schweinefleisches und der daraus verfertigten Fleischwaaren, soweit diese nicht den Beweis der vorhergegangenen amtlichen Untersuchungen beibringen konnten, auf Trichinen und Finnen. Die bezügliche Polizeiverordnung wurde mit der Massgabe erlassen, dass sie in jedem Orte dann in Kraft treten solle, wenn für denselben eine dem Bedürfnisse entsprechende Zahl von Fleischbeschauern vorhanden, bekannt gemacht und verpflichtet sei. Im Uebrigen enthielt sie die gewöhnlichen Bestimmungen und verordnete in der hierzu erlassenen Instruktion noch, dass der Fleischbeschauer, welcher für jede Untersuchung eine Mark zu fordern habe, an einem Tage nicht mehr als 10 Schweine untersuchen solle. Die Aussicht auf einen immerhin ganz lohnenden Verdienst bewog alsbald viele Personen in den Städten und auf dem Lande sich als Fleischbeschauer ausbilden und examiniren zu lassen. Dass auch Lehrer als Fleischbeschauer angestellt würden, gab die Königliche Regierung desshalb nicht zu, weil jene durch dieses Nebenamt ihren Berufsgeschäften entzogen und mit der Bevölkerung in Konflikt gesetzt werden könnten. Auf sie [p. 33] zurückzugreifen war auch nicht nöthig, da bald in dem grösseren Theile aller Kreise eine genügende Zahl anderweitiger Personen als Fleischbeschauer bestellt werden, und die Fleischbeschau zur Ausführung kommen konnte. Die Konkurrenz wurde sogar schon nach einiger Zeit so gross dass die einzelnen Fleischbeschauer in ihren Forderungen unter die Taxe gingen, und mehrere Gemeinden sich versucht fühlten, dem Mindestfordernden die Fleischbeschau, welche sie in öffentlicher Versteigerung ausboten, zuzuschlagen. Hiergegen legte jedoch die Königliche Regierung Protest ein und untersagte diese Art von Versteigerung.

"Nirgends im Bezirke wurde die obligatorische Fleischbeschau von vornherein mit grossem Enthusiasmus aufgenommen, und bald erhob sich eine weit verbreitete Agitation gegen dieselbe, welche zunächst die Bestimmung, dass auch jedes für den Hausbedarf geschlachtete Schwein untersucht werden musste, zum Gegenstand des Angriffs machte. Von allen Seiten, vorzüglich aber von dem Lande aus, beschwerte man sich über das Drückende dieser Verordnung sowohl bei der Königlichen Regierung als bei dem Herrn Minister und legte Nachdruck darauf, dass bei der auf dem Lande oft nicht zu umgehenden grösseren Entfernung des Wohnsitzes des Fleischbeschauers das Schlachten der Schweine überhaupt erschwert, sogar in der allgemeinen Schlachtzeit unmöglich gemacht werde, und dass die Zahlung von einer Mark für die Fleischbeschau das Schweinefleisch unverhältnissmässig vertheuere. Man führte ferner an, dass unter dieser Vertheuerung natürlich zumeist der arme Mann, welchem es oft sehr schwer falle das zum Einsalzen nöthige Salz zu beschaffen, leide und der Preis von 1 Mark für die ortsüblicherweise geschlachteten Spanferkel, welche durchschnittlich nur einen Werth von zwei bis drei Mark hätten, ein so unverhältnissmässig hoher sei, dass diese von dem Handelsmarkte ganz ausgeschlossen würden. Als Beispiel für die Höhe und das Drückende dieser unfreiwilligen Abgabe wurde der Kreis Saarburg angeführt. In diesem werden jährlich annähernd 2,500 Schweine geschlachtet, so dass die Fleischbeschaukosten 2,500 Mark betragen, eine Summe, welche der Hälfte der Klassensteuer gleichkommt. Endlich wurde behauptet, dass die Untersuchung, wenigstens auf dem Lande, wo niemals rohes Schweinefleisch gegessen werde, ganz unnöthig sei, keineswegs einen absoluten Schutz gewähre und die Schweinezucht, einen bisher blühenden Zweig der Landwirthschaft, äusserst gefährde. Alle Eingaben gingen zunächst darauf hinaus, dass wenigstens das Schlachten für das eigene Haus und den eigenen Gebrauch frei gegeben werde.

"In Folge der vielfachen Gesuche und Vorstellungen wurde unter dem 8. October 1881, den Ortspolizeibehörden seitens der Königlichen Regierung die Ermächtigung ertheilt, von der Fleischbeschau der zum eigenen Bedarfe geschlachteten Schweine abzusehen, dieselbe aber unbedingt für alles zum Verkaufegestellte Schweinefleisch festzuhalten. Mit diesem Freigeben eines grossen Theils aller geschlachteten Schweine war nun wieder den schon angestellten Fleischbeschauern gar nicht gedient und am allerwenigsten denen auf dem Lande, wo durchgängig nur für den Hausbedarf geschlachtet wird. Sie erlitten einen sehr grossen Ausfall in ihren Einnahmen und einselne [p. 34] Beschauer in den Dörfern hatten überhaupt keine Untersuchung mehr zu machen. In ihrer Noth wandten sie sich an die Königliche Regierung und baten diese sie für den entstandenen Ausfall schadlos zu halten, ihnen die Kosten des Unterrichts, des Examens, des Mikroskops, 2c., zu ersetzen, da sie in gutem Glauben auf das Weiterbestehen der ersten Polizeiverordung sich die vielen Kosten und Mühen gemacht hätten. Hierzu sah sich die Regierung um so weniger veranlasst, als sie keine Garantie der Einkünfte übernommen hatte, das Grundprinzip der Fleischbeschau bestehen blieb, und auch den für den eigenen Bedarf Schlachtenden die Gelegenheit zur Untersuchung gegeben sein sollte. Auch die weiterhin an den Herrn Ressortminister gerichteten Beschwerden wurden hiernach zurückgewiesen."—*Schwartz, 1884, pp. 32–34.*

Wiesbaden .... 3 cases, 0 death.

Official district health reports are not accessible for the years 1895–1898. No cases have been found for the years 1881–1888 (Wagner, 1882; 1883, p. 39; 1886; 18—, p. 76); 1889–1891 (Pfeiffer, 1894, p. 36);

1892–1894 (Pfeiffer, 1897, p. 24); 1895–1896, 1898. The only cases collected are:

1893, 2 cases, 0 death. No details.
1897, 1 case, 0 death. In hospital. No details.

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B. KINGDOM OF SAXONY.

1860 to 1880: 2,610 cases, 52 deaths. Annual average, 127.28 cases, 2.95 deaths.

1881 to 1898: 1,634 cases, 76 deaths. Annual average, 86 cases, 4 deaths.

The statistics for Saxony are much more complete than those for any other State in Germany, owing to the careful preparation of the annual health report (Jahresbericht) since 18—.

Ostertag (1899, p. 488) quotes Johne as authority for the statement that Saxony experienced 3,402 cases, 79 deaths, of trichinosis during the 30 years 1860 to 1889, giving an annual average of 79.6 cases, 1.18 deaths, per year. A summary for the 21 years, 1860–1880, which I made several years ago showed 2,610 cases, 52 deaths, an average of 127.28 cases, 2.95 deaths, per year. These figures do not agree exactly with the official statistics.

The following extracts from reports for years prior to 1881 are both interesting and instructive:

"In andern dagegen, welche in Gittersee nur 8 Personen betraf, starben, wie gesagt, 4 derselben. Hier war es ein im Hause gemästetes und geschlachtetes Schwein, von welchem diese Personen am Schlachttage selbst (9. April) Wellfleisch und frische Wurst gegessen hatten. Der Vater und drei erwachsene Kinder starben. Alsbald nach dem Bekanntwerden dieser Krankungen hatte der Bezirksarzt Dr. Lehmann sämmtliches noch vorhandene Fleisch mit Beschlag belegen lassen, später aber auf Bitten der Wittwe in der Hoffnung, dass letztere durch die gemachten traurigen Erfahrungen hinreichend belehrt sein würde, unter der Bedingung wieder freigegeben, dass nichts davon an dritte Personen abgegeben und alles nur gehörig gekocht genossen werde. Trotzdem ergab sich später, dass diese Frau einen Schinken des Schweines an einen Fleischer in Dresden verkauft hatte, da derselbe, bei der mikroskopischen Untersuchung trichinös gefunden, zu weitern Erörterungen Anlass gegeben hatte. Ein unnachsichtliches Vorgehen in ähnlichen Fällen hat sich der Bezirksarzt natürlich nach dieser Erfahrung zum Gesetz gemacht."—*Reinhardt, 1878*, VIII, *Jahresbericht (for 1876), p. 47.*

"In Leipzig herrschte im October und November eine sehr verbreitete Epidemie. Es wurden etwa 184 Erkrankungen gezählt, von denen 2 tödtlich endeten. Letztere betrafen einen Professor und einen Kaufmann. Die Ursache wurde in aus Braunschweig bezogenen Mettwurst gefunden. Die in dieser Stadt seit lange bestehende Trichinenschau hatte somit die Erkrankungen nicht verhüten können. Zu gleicher Zeit waren auch an andern Orten durch aus derselben Quelle bezogene Wurst Trichinenerkrankungen in Mehrzahl aufgetreten, so namentlich in Höxter in Westfalen."—*Reinhard, 1879, IX. Jahresbericht (1877), p. 36.*

[1]"As proof of the small amount of confidence to be attached to the microscopic

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[1] "Als Beleg für die geringe Zuverlässigkeit der mikroskopischen Trichinenschau haben wiederum mehre Bezirksärzte von Fällen zu berichten wo sie oder andre geübte Mikroskopiker erst nach dem Durchsuchen von 30 oder 40 Präparaten eine

examination for trichinæ, several Bezirk physicians have again reported cases where they or other practiced microscopists have not been able to find the parasites until they had examined thirty or forty preparations, when the first inspector found numerous trichinæ present. This irregular distribution of the worms which frequently occurs and which renders it possible to overlook them, lessens the value of the microscopic inspection, and shows that thorough cooking of the meat, which is happily very common, is a better guarantee of its wholesomeness.

[1] * * * "Among these cases it again occurred that in one hog only one trichina was found by several examiners, in spite of all care * * *."—*Reinhard, 1881, p. 44.*

In Glauchau most of the butchers agreed to the trichina inspection, and displayed signs to this effect in their shops. An investigation showed, however, that not an inconsiderable number of hogs were not inspected. In Leipzig one trichina was found in a slaughtered hog; 600 further preparations from the same animal failed to reveal a second specimen.[2]

Trichine finden konnten in einem Fleische, wo vorher der erste Untersucher zahlreiche gefunden hatte. Eben die häufig so ungleichmässige, nesterweise [p. 49] Vertheilung der Trichinen, die so leicht ein Uebersehen derselben ermöglicht, schmälert die Vertrauenswürdigkeit der Resultate der mikroskopischen Untersuchung und giebt das glücklicher Weise noch sehr verbreitete Garkochen des Fleisches eine bessere Garantie für die Unschädlichkeit desselben."—*Reinhard, 1880, X. Jahresbericht (1878), pp. 48, 49.*

[1] "Nach den bezirksärztlichen Berichten sind im Ganzen durch die Trichinenschauer 54 Schweine als trichinig ermittelt worden, darunter kam es wieder einmal vor, dass in einem Schweine von mehreren Untersuchern nur eine einzige Trichine trotz aller Sorgfalt gefunden wurde. Besonders bemerkenswerth ist die in Dresden gemachte Beobachtung, wo zum ersten Male lebende Schweine aus Amerika dem Schlachthofe zugeführt wurden. Von den 88 Stück wurden nicht weniger als 14, das sind 16 per cent trichinig gefunden!"—*Reinhard, 1882, XII. Jahresbericht (1880), p. 44.*

[2] "In Glauchau hatten sich die meisten Fleischer zur Trichinenschau vereinigt, und bezügliche Zettel an ihren Verkaufsläden aufgehängt. Eine vorgenommene Revision ergab aber, dass ein nicht [p. 55] unbedeutender Theil der Schweine nicht untersucht worden war und hatte der Stadtrath dagegen einschreiten müssen.

"Demungeachtet sind vielfach Trichinen in Schlachtthieren gefunden und die betreffenden Schweine vor dem Verkaufe unschädlich gemacht worden. So wurden in Bernstadt und in Löbau je zweimal, in Herwigsdorf einmal, in Freiberg ebenfalls zweimal und in Dresden bei einer grössern Anzahl geschlachteter Schweine Trichinen gefunden, hier auch in amerikanischen Schinken und unter diesen elfmal in solchen, welche bereits in Hamburg von den dortigen Trichinenschauern untersucht und amtlich als trichinenfrei bezeichnet worden waren. In Leipzig wurde von geschlachteten Schweinen nur in einen eine unzweifelhafte lebende Muskeltrichine gefunden und vom Bezirksarzte und dem Prof. Zürn als solche controllirt, in 600 weiteren Präparaten aus demselben Thiere war es nicht möglich eine zweite zu entdecken. Trotzdem wurde nur das ausgeschmolzene Fett, nicht aber das Fleisch freigegeben. Ausserdem wurden hier 3 amerikanische Schinken und 3 solche Speckseiten, ferner in Chemnitz eine, in Zwickau 3 Speckseiten und 4 geschlachtete Schweine, 6 solche auch im Medicinalbezirke Plauen trichinenhaltig gefunden."—*Reinhard, 1881, XI. Jahresbericht (1879), pp. 54, 55.*

1881 to 1898.

Passing now to the years 1881–1898, the following statistics have been gathered. No cases have been found for the years 1892, 1893, 1896.

The outbreaks collected give a total of 1,634 cases, 76 deaths, of which it has been alleged that one case in Chemnitz (p. 134) was due to American bacon eaten on a voyage from America to Europe. The average for the 19 years is 86 cases, 4 deaths, a decrease of 41.28 cases and an increase of 1.05 deaths, when compared with the average for 1860–1880. During the exclusion of American pork (1883–1891) 1,255 cases, 76 deaths, occurred, giving an annual average of 139.4 cases, 8.3 deaths. Since its readmission (1892–1898) under certificate, 42 cases, 0 death, have occurred, an annual average of 6 cases, 0 death, thus showing a decrease of 133.4 cases, 8 deaths, per year. Under these circumstances it can not be claimed that American pork has *increased* the number of cases.

Arranging the cases according to the source of infection, the following table is obtained:

Summary of Saxon outbreaks, 1881–1898.

1881-1882.		1883-1891.		1892-1898.		1881-1898.	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
337	1	1,255	75	42	....	1,634	*a* 76
....	....	178	5	1	....	179	*b* 5
11	....	288	1	5	....	304	*c* 1
[11	..........]	[466	6]	[6	..........]	[483	*d* 6]
....	....	25	....	....	....	25	*e*
142	....	286	39	30	....	458	*f* 39
173	1	471	30	3	....	647	*g* 31
10	....	1	....	....	....	11	(*h*)
....	....	6	....	3	....	9	(*i*)
1	....	....	....	....	....	1	(*j*)

a **Totals**, divided as follows:

b **Due to meat** which, it would appear, was inspected and passed as free from trichinæ.

c Due to other defects in the inspection system.*

* Meat was eaten before result of inspection was known; or meat was inspected but inspector suppressed the results of inspection; or meat stamped as free from trichinæ before inspection was ended; or buried hog (inspected?) was dug up and eaten; or meat was marked in the book as free from trichinæ; or meat appears to have been smuggled away from the inspection.

d Total cases and deaths which may be attributed to faults of the inspection.

e Additional cases due to meat which may or may not have been inspected.

f Definitely stated that the meat was not inspected, hence source known.

g Source of infection known, but details regarding inspection not given.

h Definitely stated that source of infection was not known or could not be traced.

i No data given regarding meat or data insufficient to classify.

j Alleged to have been due to American meat eaten on voyage from America to Germany, but data incomplete.

With the record shown in the above table before us, it is difficult to see any sanitary justification in the Saxon health statistics for the attacks make by Saxon papers upon our goods.

1881: 177 cases, 1 death.

Summary for the year.—Total of 177 cases, 1 death. Of these, 11 cases occurred from eating pork before it was inspected; 1 case is alleged to have resulted from eating American pork during the passage from America to Germany, but complete evidence is lacking; 102 cases arose from uninspected pork.

Chemnitz .... 1 case, 0 death.

Reinhard, 1883, p. 48: It is alleged that the patient ate American pork on board ship from America to Germany, and became sick in Chemnitz. See p. 167 of present report.

Dresden .... 11 cases, 0 death.

Reinhard, 1883, p. 28: Raw ham eaten before inspection was reported.

Lindenau bei Leipzig, September .... 60 cases, 0 death.

Reinhard, 1883, p. 48: Hog was not inspected. "Der betreffende Fleischer hatte zwar bekannt gemacht, dass bei ihm *alle* Schweine auf Trichinen untersucht würden, doch auf erfolgte Anzeige lehnte der Staatsanwalt die Untersuchung ab." One death, but not due to trichinosis.

Neukirchen and vicinity bei Chemnitz .... 63 cases, 1 death.

Reinhard, 1883, pp. 48, 49: Source of hog known. No details regarding inspection.

Oberloschwitz bei Dresden .... 2 cases, 0 death.

Reinhard, 1883, pp. 47, 48: Same source as Spitzkunnersdorf.

Spitzkunnersdorf bei Zittau .... 40 cases, 0 death.

Reinhard, 1883, pp. 47, 48: Trichinæ found. Hog had not been inspected.

1882: 160 cases, 0 death.

Summary for the year.—Total of 160 cases, 0 death. None of these cases were alleged to be due to American pork. It is not definitely stated whether any cases were due to inspected meat.

"Von dem Vereine amtlich verpflichteter Trichinenschauer in Dresden wurde beim Landes-Medicinal-Collegium die Einführung der obligatorischen Trichinenschau beantragt und dies hauptsächlich durch ihre misslichen Erwerbsverhältnisse begründet. Da sie indess u. A. angaben, dass hier in Dresden oft 60–80, ja 100 Schweine in einem Tage von einem Trichinenschauer untersucht würden und dies unmöglich in gewissenhafter Weise geschehen könne, setzte das Collegium das kgl. Ministerium unter Bezugnahme auf das von ihm bearbeitete Normalregulativ hiervon in Kenntniss und sind auch die Verwaltungsbehörden hierauf angewiesen worden."—*Reinhard, 1884, XIV Jahresbericht (1882), p. 56.*

Carlsfeld (Schwarzenberg), March .... 50 cases, 0 death.

Reinhard, 1884, p. 52: Not stated whether the hog was inspected or not. Source known.

Dresden, June and December .... 20 cases, 0 death.

Reinhard, 1884, pp. 51, 52: First outbreak caused by a ham brought from the country. Source of infection in second outbreak not determined.

Scheibenberg and vicinity, May .... 50 cases, 0 death.

Reinhard, 1884, p. 52: Trichinæ found. Not stated whether hog was inspected. Source known.

Thum (Annaberg), January .... 40 cases, 0 death.

Reinhard, 1884, p. 52: Meat not inspected, although an inspector was stationed in Thum.

1883: 155 cases, 5 deaths.

Summary for the year.—Total of 155 cases, 5 deaths. Of these, 105 cases, 5 deaths, were due to pork which had been inspected and passed as free from trichinæ. No cases were alleged to have been due to American pork. The decree excluding American pork was issued March 6, 1883.

Kirschberg, Med.-Bez. Zwickau, April .... 105 cases, 5 deaths.

Reinhard, 1885, pp. 50, 51: *Hog had been inspected and passed as free from trichinæ.*

Reichenau, Med.-Bez. Zittau, February .... 50 cases, 0 death.

Reinhard, 1885, pp. 50, 51: Infection probably from a meat shop in Reichenau, from which all had purchased meat.

1884: 73 cases, 2 deaths.

Summary for the year.—More than 73 cases, 2 deaths. Of these, 32 cases were due to pork which had been inspected and passed as free from trichinæ; about 3 cases, 1 death, were due to pork which the trichina inspector had smuggled away from the inspection.

Chemnitz .... 1 case, 0 death.

Reinhard, 1886, p. 42: Source of infection not known.

Grossedlitz bei Pirma .... 3 cases, 1 death.

Reinhard, 1886, p. 42: "* * * eines wahrscheinlich der Untersuchung durch den Trichinenschauer entzogenen Schweines * * *." Probably the trichina inspector had smuggled the hog away from the inspection. "Several" cases.

Plauen i. V., August .... About 30 cases, 0 death.

Reinhard, 1886, pp. 42, 43: Probable source of infection known; nothing said regarding inspection.

Rodewisch bei Auerbach .... More than 32 cases, 0 death.

Reinhard, 1886, p. 43: *The hog was inspected and passed as free from trichinæ.* "Die Infection war von einem stark trichinigen Schweine ausgegangen, das zwar einem Trichinenschauer zur Untersuchung vorgelegen hatte, in welchem er aber keine Trichinen gesehen hatte, da er bei der Untersuchung mit grosser Unkenntniss und Nachlässigkeit verfahren war."

Volkmarsdorf bei Leipzig .... 7 cases, 1 death.

Reinhard, 1886, pp. 42, 43: Patient died in Leipzig at Jacob Hospital. Source of meat known. Nothing said regarding inspection.

1885: 154 cases, 7 deaths.

Summary for the year.—About 154 cases, 7 deaths. Of these, 11 cases resulted from meat which was smuggled through the inspection. One case due to eating meat before the results of the inspection were known.

"Die Trichinenschau ist zwar in vielen Orten theils obligatorisch für alle im Orte geschlachteten Schweine oder nur facultativ eingeführt, doch hatten mehrfache

Erfahrungen gezeigt, dass diese Untersuchungen keineswegs überall mit der den Zwecke entsprechenden Sorgfalt ausgeführt werden. So ergab es sich theils, dass die angestellten Trichinenschauer entweder die erforderliche Vertrautheit mit der Untersuchungsmethode oder mit den Eigenschaften der Trichinen nicht oder nicht mehr besassen, oder ihre Mikroskope schlecht gehalten und unbrauchbar geworden waren, theils hatten die Gemeinden selbst unter Vernachlässigung der in dem vom k. Ministerium herausgegebenen Normalregulativ empfohlenen Vorschriften Regulativ aufgestellt, welche den Werth der Trichinenschau völlig illusorisch machten. Im Auftrage des Ministeriums hat daher das Landes-Medicinal-Collegium das frühere Normalregulativ umgearbeitet und ist dabei zugleich empfohlen worden, eine regelmässige Beaufsichtigung der Trichinenschauer anzuordnen, wobei namentlich der gute Zustand der zu den Untersuchungen bestimmten Mikroskope zu ermitteln und festzustellen ist, ob die Trichinenschauer die für ihre Function nothwendigen Kenntnisse und Fertigkeiten noch besitzen. Das k. Ministerium hat auch durch die Verordnung vom 9. November 1885 dem entsprechend verfugt und zugleich die Bezirksthierärzte ermächtigt, auf Ansuchen der Gemeindebehörden, die Beaufsichtigung der Trichinenschauer zu übernehmen. Zugleich ist den Gemeindebehörden die möglichst unveränderte Annahme des Normalregulativs, namentlich in seinen wesentlichen Bestimmungen, nicht minder auch die Vernehmung mit dem Bezirksarzte über die zu unterlassenden Vorschriften empfohlen worden."—*Reinhard, 1887, XVII Jahresbericht (1885), p. 49.*

Beiesdorf and Neulaube, August .... 10 ? cases, 0 death.

Reinhard, 1887, pp. 44, 45: A small epidemic. Source known. Nothing said regarding inspection.

Cunewalde .... More than 60 cases, 0 death.

Reinhard, 1887, pp. 44, 45: Med.-Bez. Löbau; from "Raucherwürstchen." Source known. Nothing said regarding inspection.

Ehrenfriedensdorf .... 22 cases, 0 death.

Reinhard, 1887, pp. 44, 45: Trichinæ found in a piece of meat. Source traced to meat from a certain butcher shop. Nothing said regarding inspection. Med.-Bez. Annaberg.

Leipzig .... 1 case, 0 death.

Reinhard, 1887, pp. 44, 45: Meat eaten before inspector reported. Rest of meat destroyed.

Löbau bei Dresden, November .... 44 cases, 5 deaths.

Reinhard, 1887, p. 44: Hog was not inspected. Raw ham. Two of these cases were in Dresden. Trichinæ found.—Veröff., 1887, p. 579.

Markneukirchen .... 3 cases, 0 death.

Reinhard, 1887, pp. 44, 45: Epidemic. Source known. Nothing said regarding inspection. Med.-Bez. Œlsnitz.

Pausa .... 11 cases, 0 death.

Reinhard, 1887, pp. 44, 45: *Hog was secretly smuggled away from the inspection.* "* * * war das Schwein der Untersuchung heimlicher Weise entzogen worden * * *." Med.-Bez. Plauen.

Zittau, December .... More than 3 cases, 2 deaths.

Reinhard, 1887, p. 44: Sausage from Pommern. Several other cases. Trichinæ afterwards found. Nothing said regarding inspection.

1886: 47 cases, 1 death.

Summary for the year.—At least 47 cases, 1 death. Of these, 25 cases resulted from eating pork which should have been inspected, but was evidently not inspected.—Veröff., 1898, XXII (33), August 17, p. 688: Twenty-five cases of trichinosis in hospitals between 1886–1895.

Alteibau, September .... More than 25 cases, 0 death.

Zeitschr. f. Fleischbeschau u. Fleischprod., 1886, II (1), October, p. 9: "In Eibau und dessen nächster Umgebung erkrankten ca. 40 Personen an der Trichinosis, doch hat die Krankheit bisher noch einen verhältnissmässig günstigen Verlauf genommen."—Reinhard, 1888, p. 38: One and one-half hogs were used. The hog was inspected, but the half was not. Inspection exists here.

Alt-Waldenburg, October–November .... 19 cases, 0 death.

Reinhard, 1888, p. 38: Med.-Bez. Glauchau. Source of infection known. Nothing said regarding inspection, but probably not inspected, as host was imprisoned.

Buckersdorf .... 1 case, 0 death.

Reinhard, 1888, p. 38: Details not given. Number of cases not given.

Ottendorf .... 1 case, 0 death.

Reinhard, 1888, p. 38: Details not given. Number of cases not given.

Ringenhain .... 1 case, 1 death.

Reinhard, 1888, p. 38: Ate sausage at Neustadt bei St. At least one fatal case. Med.-Bez. Bautzen. Source apparently known. Nothing said about inspection.

Zwickau (Landgericht) .... [19 cases, 0 death].

Veröff., 1891, p. 64*: 19 cases. Hog not inspected. Landgericht Zwickau. Schankwirth K., imprisoned fourteen days. Probably this is the same outbreak as Alt-Waldenburg, 1886.

1887: 234 cases, 26 deaths.

Summary for the year.—About 234 cases, more than 26 deaths.

Brandis bei Grimma .... 4 cases, 0 death.

Roth, 1889, p. 65: Details not clear. Source known (?) [mention of "der Hausschlächter]. Nothing said regarding inspection.

Grimma .... 8 cases, 0 death.

Roth, 1889, p. 65: Source of infection traced. Nothing said regarding inspection.

Leipzig, see Unterhainsdorf .... [3 cases, 0 death].

Unterhainsdorf i. V. and vicinity, October.... 198 cases, 26 deaths.

Roth, 1889, p. 65: 170 cases, 26 deaths. Cervelat sausage. Hog came from Hamburg. Nothing said regarding inspection.—Veröff., 1887, p. 668: 100 cases, 14 deaths.—Veröff., 1888, p. 227: 198 cases, 22 deaths. All from sausage of one restaurant in Unterhainsdorf. German hog from Hamburg. First cases diagnosed as "cholera nostras." Cases distributed as follows: Unterhainsdorf, 65 cases, 12 deaths; Reichenbach, 49 cases; Hauptmannsgrün, 14 cases, 2 deaths; Infersgrün, 14 cases, 5 deaths; Oberhainsdorf, 13 cases, 1 death; Oberreichenbach, 8 cases; Neumarkt, 2 cases, 1 death; Schneidenbach, 1 case, 1 death; Schönbach, 1 case; Mylau, 1 case; Lauter, 1 case; in all, 169 cases, 22 deaths. Besides these, 3 cases in Leipzig (patients had been in Hainsdorf) and 26 cases in Döbeln (soldiers who had eaten sausage from Hainsdorf).—Zeitschr. f. Fleischbeschau u. Fleischprod., 1887, III (3), December, p. 34: 100 cases. 19 deaths.—Idem, 1888, III (5), February, p. 51: 150 cases, 28 deaths

Vielau bei Zwickau .... 23 cases, 0 death.

Roth, 1889, p. 65: Med.-Bez. Zwickau. Source of infection traced. Nothing said regarding inspection.

1888: 404 cases, 34 deaths.

Summary for the year.—Total of 404 cases, 34 deaths. Several other doubtful cases.

Geyer bei Annaberg, July .... 8 cases, 0 death.

Günther, 1890, p. 9: Meat eaten before result of the inspection was known. "In Geyer bei Annaberg hatten Anfang Juli zwei Fleischer gemeinschaftlich ein Schwein geschlachtet und einen Theil des Fleisches vor der Untersuchung verkauft. Als die Untersuchung das Vorhandensein von Trichinen in reichlicher Menge ergeben hatte, haben diejenigen, welche bereits von dem Fleische genossen, an demselben oder am folgenden Tage Brechmittel und Abführmittel erhalten. Ihre Zahl betrug etwa 40. Gegen drei Wochen später sind 8 Personen erkrankt. Ein tödtlicher Ausgang ist nicht vorgekommen."—Veröff., 1891, p. 64*: Inspection required, but part of the hog was sold before examination; 7 cases, 0 death. Possibly this reference belongs here.

Leipzig, March .... 3 cases, 0 death.

Günther, 1890, p. 99: Hog slaughtered March 4. It is not definitely stated whether the hog was inspected. "In Leipzig erkrankten ein Fleischergeselle und dessen zwei Brüder, Schulknaben im Alter vom 11 und 13 Jahren, an Trichinose. Sie hatten von einem am 4. März geschlachteten Thiere rohes Fleisch gegessen. Die Erkrankung begann nach 7–9 Tagen, die Genesung erfolgte nach 4–5 wöchentlicher Krankheitsdauer. Im noch vorgefundenen Schinken und Pökelfleische wurden sehr zahlreiche Trichinen gefunden. Der Trichinenschauer hatte ganz nachlässig Buch geführt."

Neudörfel, Oberhohndorf, Planitz, and Schedewitz, April......
118 cases, 0 death.

Günther, 1890, p. 99: Bez. Zwickau. Meat from Neudörfel. "In dem Monat April fällt eine Massenerkrankung in der Umgegend von Zwickau. Es erkrankten in den Vororten Neudörfel, Oberhohndorf, Planitz, und Schedewitz 118 Personen an leichter Trichinose. Insbesondere waren Bergleute und deren Familien erkrankt, welche halbgeräucherte Bratwurst oder gepökeltes Schweinefleisch roh verzehrt hatten. Das Fleisch stammte vom Fleischer in Neudörfel, welcher der Lieferant für den Consumverein in Schedewitz war. Es war nicht mehr zu ermitteln, welches von den am 6. und am 10. April geschlachteten beiden Thieren das trichinenhaltige gewesen war. Nur wurde nachgewiesen, dass der Schlächter die Stücke selbst ausgeschnitten und den Eintrag in das Schaubuch 'trichinenfrei eigenhändig gemacht habe."—*Zeitschr. f. Fleischbeschau u. Fleischprod., III (8), May, 1888, p. 96.*

Obercunewalde, etc., January .... 235 cases, 34 deaths.

Obercunewalde, 169 cases; Cunewalde, 22; Lauba, 9; Kleindesha, 8; Löblau, 7; Beyersdorf, 7; Lawalde, 3; Spremberg, 3; Oppach, 2; Altlöbau, 1; Cottmarsdorf, 1; Durrhennersdorf, 1; Neuschöneberg, 1; Grossdehsa, 1. All these cases came from sausage which a butcher had sent out to his patrons as Christmas presents. *He claimed that the hog had been examined and passed as free from trichinæ,* but was unable to produce the certificate. Five hogs slaughtered; 1, 3, and 5 were examined. The trichinous hog was probably the second. Veröff., 1888, p. 227.—Deutsch. M. Z., 1889, p. 84 (after Riedel).—Veröff., 1889, p. 465.—Günther, 1890, pp. 97, 98: Meat was not inspected.—Zeitschr. f. Fleischbeschau u. Fleischprod., 1888, III (5), February, p. 51: Inspector not at fault.

Obersachenfeld, January .... 33 cases, 0 death.

Günther, 1890, pp. 98–100: Bz. Schwarzenberg, 33 cases. Source of infection known. Nothing said regarding inspection.—Veröff., 1888, p. 228. About 30 cases, January.—Zeitschr. f. Fleischbeschau u. Fleischprod., 1888, III (5), February, p. 51.

1889: 41 cases, 0 death.

Summary for the year.—Only one outbreak found. This consisted of 41 cases, which were due to meat which had been inspected and passed as free from trichinæ.

The annual sanitary report[1] mentions two cases of inspection which are not without interest. In one case the inspector took specimens for examination, immediately stamped the animal as free from trichinæ, as was his custom, and then went home to make the examination! He left word with the butcher to wait an hour before using the meat, and if any trichinæ were found he would return. Upon finding trichinæ he ran from one inspector to another instead of returning to the butcher. The latter finally heard from another inspector that the meat was trichinous. In the meantime 33 persons had eaten of it. In the second case, an inspector claimed to have found trichinæ in a hog, part of which had already been eaten. Later examination of the preparation showed no trichinæ, but a structure which appeared like a curled muscle fiber.

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[1] "In Glauchau hatte ein Trichinenschauer, nachdem er die Proben entnommen, vor der mikroskopischen Untersuchung das Schwein gestempelt und war dann fortgegangen, um die mikroskopische Untersuchung zu Hause vorzunehmen. Er hatte dies stets so gemacht, auch bei dem Schlächter hinterlassen, sie sollten wegen des Fleischverkaufes eine Stunde warten; wenn er etwas [p. 100] fände, würde er wiederkommen. Im vorliegenden Falle fand er nun auch Trichinen; statt aber nun sofort für die Beschlagnahme des Schweines zu sorgen, lief er von einem Trichinenschauer zum anderen und von einem dieser Trichinenschauer erfuhr es der Verkäufer, der sich an den Bezirksthierarzt wendete, worauf sofort Anzeige bei dem Stadtrathe erfolgte. Von dem Schweine, das abgekapselte Trichinen zeigte, hatten 33 Personen Wellfleisch gegessen. Der Trichinenschauer wurde nach dem Regulativ für Trichinenschau bestraft und ihm sein Approbationsschein abgefordert. Da Niemand erkrankte, so war wegen fahrlässiger Körperverletzung nicht gegen denselben vorzugehen. * * *

"In Bernbruch (Medicinalbezirk Grimma) wollte ein Trichinenschauer in einem geschlachteten Schweine, von welchem bereits mehrere Menschen gegessen hatten, eingekapselte und freiliegende Trichinen gefunden haben. Das Schwein wurde mit Beschlag belegt, und der Bezirksarzt aufgefordert, sich wegen der zu treffenden Anordnungen umgehend gutachtlich zu äussern. Obschon die nach Punkt 5 der Vorschriften vom 21. Juli 1888 für die Untersuchung des Schweinefleisches auf Trichinen vorgeschriebenen Dauerpräparate nicht beigegeben waren, beantragte derselbe, dass der Eigenthümer sich vorläufig jeglicher Verfügung darüber zu Genusszwecken zu enthalten habe und das trichinös befundene Schwein unter polizeilicher Controle zu zerhacken, mit Petroleum reichlich zu übergiessen und tief zu vergraben sei, weil eine Nutzbarmachung des Fettes zu technischen Zwecken u. s. w. in ländlichen Verhältnissen kaum angängig sei. Zur Verhütung von Trichinoseerkrankungen bei denen, die bereits von dem Fleische genossen hätten, sei umgehend ärztliche Hülfe herbeizuziehen: gleichzeitig wurde nachträgliche Einsendung der Dauerpräparate verlangt. In diesen fand der Bezirksarzt in der That keine Trichinen, sondern nur ein Gebilde, das derselbe als ein zusammengerolltes Muskelbündel ansah. Zur weiteren Feststellung sollten von dem vergrabenen Schweine noch Fleischproben entnommen und dem Bezirksarzte zugestellt werden, was aber nicht geschehen ist."—*Günther, 1891, XXI Jahresbericht (1889), pp. 99, 100.*

Bernsbach bei Grunharn, March .... 41 cases, 0 death.

Günther, 1891, p. 91: *Hog had been inspected and passed as free from trichinæ.* Med.-Bez. Schwarzenberg.—Veröff., 1891, p. 699: *Hog had been inspected and passed as free from trichinæ.*

1890: 117 cases, 0 death.

Summary for the year.—One outbreak with 117 cases. Source of infection not definitely traced.

In Amtshauptmannschaften Oschatz and Flöha, the reexamination of all the trichina inspectors was given into the hands of the district veterinarian. In Flöha the result of the examination was on the whole satisfactory, but several of the inspectors who had been trained 10 or 12 years previously had to be "plucked" as incapable of making the inspection.

In Oschatz, of 70 microscopists reexamined the work of 14 was beyond criticism, of 16 it was good, of 32 fair, of 8 unsatisfactory, so that a reexamination was here necessary. Most of the microscopes of this district were in good condition. Here and there some were dirty. In one case the adjustment screw was so rusty, the mirror so blinded, the lens so clouded with dirt and fat, that it could not be used.[1]

Ernsthal,	July and August	74 cases, 0 death.
Hohenstein,		25 cases, 0 death.
Oberlungwitz,		18 cases, 0 death.

Günther, 1891, pp. 115, 116: 117 cases, 0 death. Source not definitely traced.—Günther, 1892, p. 77: "To the report of the Ernstthal epidemic last year should be added that the most probable supposition is that the trichina inspector had taken samples from a trichinous hog in the evening, but had not examined them until the following morning. Taking into consideration the small number of parasites found, he had failed to report the case because the butcher had, in the meantime, chopped and mixed the meat with meat from a second hog."—"Zu der im vorjährigen Berichte Seite 115 erwähnten Trichinenepidemie in Ernstthal ist noch nachzutragen, dass der wahrscheinlichsten Annahme nach der Trichinenschauer Abends von einem trichinösen Schweine Proben entnommen hatte, sie aber erst am nächsten Morgen untersuchte. Mit Rücksicht auf die geringe Menge der vorgefundenen Trichinen hatte er die Anzeige unterlassen, weil der Fleischer inzwischen das Fleisch mit dem eines zweiten Schlachtschweines zusammengehackt und verarbeitet hatte."

1891: 30 cases, 0 death.

Summary for the year.—One outbreak of 30 cases. This may have been due to meat which was inspected and passed as free from trichinæ, or to a hog which was buried and afterwards dug up and made into sausage. The decree permitting the importation of American pork was issued September 3, 1891. No cases are alleged to have been due to American products.

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[1] "In den Amtshauptmannschaften Oschatz und Flöha ist die Beaufsichtigung sämmtlicher Trichinenschauer dem Bezirksthierarzte übertragen. In letztgedachtem Bezirke war das Ergebniss der Prüfungen im Allgemeinen ein zufriedenstellendes, nur unter den älteren, vor 10–12 Jahren ausgebildeten mussten mehrere als unfähig zur Ausübung der Trichinenschau zurückgewiesen werden. Im erstgenannten Bezirke arbeiteten von 70 nachgeprüften Trichinenschauern nur 14 ganz tadellos, 16 gut, 32 genügend, 8 ungenügend, so dass sich eine Nachprüfung nothwendig machte. Die Mikroskope befanden sich in diesem Bezirke meist in gutem Zustande; vereinzelt waren sie verschmutzt: bei einem waren die Schrauben derart eingerostet, die Spiegel erblindet, die Linsen durch Schmutz und Fett undurchsichtig, dass dasselbe gar nicht benutzt werden konnte."—*Günther, 1891, XXII Jahresbericht (1890), p. 127.*

In Amtshauptmannschaft Dresden a microscopist had to be discharged because he did not find a single trichina in a preparation containing twelve parasites, because his microscope was so dirty that crusts could be scraped off with a knife, the lenses were smeared, and his records were found very loosely kept. In Amtshauptmannschaft Grossenhain 37 of the 40 microscopists were found "good" or "sufficient;" one had to be discharged as "entirely deficient." Of 23 microscopists in Amtshauptmannschaft Löbau 2 failed to pass the inspection as "totally deficient." In Amtshauptmannschaft Kamenz one microscopist had to be discharged because of carelessness in his work. In Amtshauptmannschaft Freiberg the examination was satisfactory throughout.[1]

Alt-Gersdorf, Neu-Gersdorf, Amtsh. Löbau, July ....
30 cases, 0 death.

Veröff., 1891, p. 630: Hog apparently inspected and passed. "In den Ortschaften Alt- und Neu-Gersdorf der Amtshauptmannschaft Löbau erkrankten Mitte Juli etwa 30 Personen, darunter 15 Mitglieder einer Fabrikkrankenkasse, an Trichinose. Bei den Nachforschungen nach der Ursache der durchaus milde verlaufenen Erkrankungen wurde vom Bezirksarzte mit den behandelnden Aerzten nur festgestellt, dass die Erkrankten ungefähr 8 Tage vorher sogen. Räucherwürste von einem Fleischer in Alt-Gersdorf gegessen hatten. Das zur Bereitung dieser Würste verwendete halbe Schwein war von dem Fleischer und Trichinenschauer eines benachbarten Ortes gekauft, welcher das Fleisch bei der Untersuchung trichinenfrei befunden haben wollte. Besondere Sicherheitsmassregeln wurden in Folge des Vorfalles nicht für erforderlich erachtet; das gegen den Fleischer in Alt-Gersdorf Anfangs eingeleitete Strafverfahren wurde eingestellt."—Zeitschr. f. Fleisch- u. Milchhyg., 1891, I (11), August, p. 202: 40 cases.—Günther, 1892, p. 76: An Trichinose sind in Alt- und Neugersdorf bei Löbau im Sommer mehrere Personen erkrankt, aber in so leichter Form, dass Niemand bettlägerig geworden ist. Der Genuss von Räucherwürstchen soll die Ursache zur Erkrankung abgegeben haben. Von einem trichinösen Schweine ist aber damals dort nichts bekannt geworden; *man kam deshalb auf die Vermuthung, dass ein umgestandenes Schwein, welches verscharrt worden, heimlich ausgegraben und zur Wurstfabrikation verwendet worden sei, weil dieses Thier sich in der Erde nicht mehr vorfand.*" From this it would appear that the outbreak was caused by meat from a hog which had been buried but was afterward dug up and eaten.

1892: 0 case, 0 death.

"Von den Nachprüfungen der Trichinenschauer wird im Allgemeinen ein zufriedenstellendes Ergebniss berichtet, Amtsentsetzungen wurden bei 3 Trichinenschauern angeordnet, während bei 4 derselben eine Wiederholung der Nachprüfung vorzunehmen war. Wegen mangelhafter Beschaffenheit einzelner Bestandtheile des Mikroskopes mussten letztere mehrfach beanstandet und nach erfolgter Ausbesserung revidirt werden."—*Günther, 1893, p. 88.*

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[1] "Ueber die Revision der Trichinenschauer wird l. c. Folgendes Berichtet: In der Amtshauptmannschaft Dresden musste ein Schauer seiner Function enthoben werden, weil er in einem Präparate mit 12 Trichinen nicht eine fand, weil sein Mikroskop so verschmutzt war, dass man mit dem Messer die Krusten abschaben konnte, die Linsen ganz verschmiert und die Buchführung ganz liederlich gefunden wurden. In der Amtshauptmannschaft Grossenhain erwiesen sich von 40 Schauern 37 gut, bez. genügend, einer musste als ganz ungenügend entsetzt werden. Von 23 Schauern in der Amtshauptmannschaft Löbau mussten 2 als völlig ungenügend zurückgewiesen werden. In der Amtshauptmannschaft Kamenz musste ein Schauer wegen Nachlässigkeit in der Ausübung seines Berufes abgesetzt werden. In der Amtshauptmannschaft Freiberg war die Revision durchweg zufriedenstellend."—*Günther, 1892, XXIII. Jahresbericht (1891), p. 91.*

1893: 0 case, 0 death.

The official report (p. 79) states that no cases were registered. See, however, Leipzig. No cases alleged to be due to American pork.

"Bei den Nachprüfungen der Trichinenschauer wurden 7 der letzteren dauernd ihres Amtes entsetzt; bei mehreren waren Nachprüfungen erforderlich. Im Allgemeinen lauten jedoch die Berichte der Bezirksthierärzte über diese Angelegenheit zufriedenstellend."—*Günther, 1894, p. 83.*

Leipzig (1893 or 1894) .... [1 case, 0 death].

Zeitschr. f. Fleisch- und Milchhyg., 1896, VI (12), p. 245: One case each in Leipzig and Munich in hospitals. From Veröff.; possibly belongs to 1894.

1894: 2 cases, 0 death.

Summary for the year.—One outbreak of 2 cases reported, due to meat eaten before the inspector reported. No cases alleged to be due to American meats.

"Bei den Nachprüfungen der Trichinenschauer erwiesen sich die meisten derselben als genügend, eine grössere Anzahl jedoch erst bei wiederholter Nachprüfung. Be einzelnen waren Unregelmässigkeiten in der Buchführung oder kleinere Mängel an den Mikroskopen zu beanstanden, die schnell abgestellt wurden. In einigen Fällen wurden Schauer wegen nachlässiger Buchführung der Amtshauptmannschaft angezeigt. Dauernd ihres Amtes entsetzt wurden vier Schauer, und zwar je einer wegen ungenügender Leistungen, Brandstiftung, Unterschlagung und Meineid. In einem grossen Trichinenschauamte erwiesen sich 11 Schauer als unsicher in der Untersuchung und wurden angehalten, erneut ihre Befähigung zur Ausübung der Trichinenschau gemäss § 13 der revidirten Verordnung vom 10. März 1893 beizubringen."—*Günther, 1895, p. 105.*

Leutzsch bei Leipzig .... 2 cases, 0 death.

Günther, 1895, p. 101: "An Trichinose sind nur 2 Personen erkrankt, und zwar 2 Frauen im Dorfe Leutzsch bei Leipzig, welche nach dem Schlachten eines von ihnen selbst aufgefütterten Schweines schon mit der Zubereitung des Bratwurstfleisches sich beschäftigt und bereits von dem rohen Fleische gekostet hatten, als ihnen vom Trichinenschauer das starke Durchsetztsein des Schweines mit eingekapselten Trichinen mitgetheilt wurde. Ein am Tage nach dem Genuss des Fleisches auf ärztliches Anrathen gebrauchtes Abführmittel (Calomel) konnte das Auftreten der Krankheit, das 3 Wochen später erfolgte, nicht verhindern; doch verlief die Krankheit bei beiden Personen leicht."

1895: 3 cases, 0 death.

Summary for the year.—Günther (1896, p. 91) says that no cases were known. See, however, Dresden, 3 cases. No cases are alleged to have been caused by American meats.

"In 10 Bezirken wurden insgesammt nach dem ungünstigen Ausfall der Prüfung 20 Trichinenschauer und ein Probeentnehmer ihres Amtes enthoben. Von diesen gaben acht ihre Thätigkeit als Trichinenschauer freiwillig für immer auf, vier bestanden bei einer nochmaligen Prüfung an der thierärztlichen Hochschule in Dresden nach Absolvirung eines Cursus daselbst, während bei einem Schauer es die zuständige Amtshauptmannschaft mit einer Verwarnung bewenden liess, und vier anderen dauernd das Fähigkeitszeugniss entzogen wurde. Ueber vier suspendirte Schauer fehlt der weitere Ausgang der Angelegenheit in der Berichterstattung. In einem weiteren Bezirke erwiesen sich bei der ersten Prüfung 6 Schauer als ungenügend. Von diesen bestanden fünf bei einer Nachprüfung, der sechste nahm an einem Wiederholungscursus an der thierärztlichen Hochschule theil und erlangte erneut die Qualification als Trichinenschauer. Bei einem Schauer machte sich die Anschaffung eines neuen Mikroskopes nothwendig."—*Günther, 1896, p. 97.*

Dresden .... 3 cases, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1895, V (5), p. 101: Ham came from Frankfurt a. M. Nothing said regarding inspection. A "family."

1896: 0 case, 0 death.

Günther (1897, p. 89) says no cases became known. No cases attributed to American meat.

"Ueber die Nachprüfungen der Trichinenschauer sprechen sich die Bezirksthierärzte im Grossen und Ganzen befriedigt aus. Immerhin erwiesen sich verschiedene Schauer als unzuverlässig, so dass sieben ihres Amtes enthoben werden mussten. Von letzteren konnten jedoch drei Schauer nach Erfüllung der ministeriellen Vorschriften wieder angestellt werden. Fünf Schauer wurden wegen verschiedener Regelwidrigkeiten mit Geldstrafen belegt."—*Günther, 1897, p. 95.*

1897: 2 cases, 0 death.

According to Günther, 1898, no cases occurred. See, however, Dresden, 1 case, due to inspected meat, and Leipzig, 1 case, no details. No cases attributed to American meats.

Dresden .... 1 case, 0 death.

Zeitschr. f. Fleisch- und Milchhyg., 1897, VII (11), p. 225: Sausage made from hog slaughtered in Mocker.—Idem (7), p. 145: *Meat was evidently inspected and passed.* "Dem Vernehmen nach soll grobe Fahrlässigkeit des Trichinenschauers die Schuld an dem bedauernswerten Vorfall tragen;" 40 cases, 2 deaths. See Mocker, 1897.—Veröff., 1897, p. 587.

Leipzig .... 1 case, 0 death.

Veröff., 1897, XXI (47), November 24, p. 958: Hospital. No details.

1898: 35 cases, 0 death.

Summary for the year.—Official report not accessible. Three outbreaks occurred with a total of 35 (?) cases, 0 death. One other outbreak—diagnosis disputed—was officially stated as not due to American pork. No case traced to American meats.

Chemnitz .... 2 cases, 0 death.

Veröff., 1898, XXII (46), November 16, p. 1005: 1 case in hospital. No details.—Veröff., 1898, XXII (49), December 7, p. 1070: 1 case in hospital. No details.—Der Fleischbeschauer, 1899, IV (1), January, p. 7.

Hohenstein-Ernsthal .... 3 cases, 0 death.

Zeitschr. f. Fleisch- u. Milchhyg., 1898, VIII (10), July, p. 198: *Meat stamped as free from trichinæ before inspection was ended.* Inspector imprisoned six months. "Der Trichinenschauer Oe. zu Hohenstein-Ernsthal ist zu 6 Monaten Gefängnis verurtheilt worden, weil er das Fleisch eines Schweines vor beendigter Untersuchung für trichinenfrei erklärt hatte. Das Fleisch erwies sich nachträglich als trichinös. Der Genuss desselben hat die Erkrankung mehrerer Menschen an Trichinosis verursacht."—Veröff., 1899, p. 321: Probably belongs here. Hog killed December 4, 1897, physician called January 18, 1898.

Neugersdorf [Saxony or Prussia?] ....30(?) cases, 0 death.

Zeitschr. f. Fleisch- u. Milchhyg., 1898, VIII (9), June, p. 178: Meat imported from Bohemia and not inspected. "Numerous cases." "In Neugersdorf erkrankten zahlreiche [=30 ?] Personen an Trichinosis, wie verlautet nach dem Genusse von ununtersuchtem Schweinefleisch, welches aus Böhmen eingeführt war."

Oberplanitz .... [38 cases, 2 deaths].

See p. 181.

[1899: 3 cases, 0 death.]

Official report for the Kingdom not accessible. See Chemnitz, 3 cases. No cases attributed to American meats.

Chemnitz .... 3 cases, 0 death.

Veröff., 1899, XXIII (6), February 8, p. 82: In hospital. No details.

[1900: 50 cases, 1 death.]

Official reports not accessible. See Gross-Schönau, 50 cases. No cases attributed to American pork.

Gross-Schönau .... [50 cases, 1 death].

Meat sold by a trichinæ inspector; it appears doubtful whether he had inspected the pork.

Deutsche thierärztliche Wochenschr., VIII (9), March 3, 1900, p. 80: "In Gross-Schönau (Sachsen) sind über 50 Personen an Trichinose erkrankt und eine daran gestorben. Ursache der Epidemie ist das Fleisch eines Schweines, welches der Fleischer, der zugleich Trichinenschauer ist, nicht untersucht hatte. In den noch vorhandenen Schinken des Schweines wurden Trichinen nachgewiesen. Der gewissenlose Trichinenschauer ist verhaftet und sieht seiner Verurtheilung entgegen. Die kranken Personen befinden sich auf dem Wege der Besserung, sodass weitere Todesfälle kaum noch vorkommen dürften."

Zeitschr. f. Fleisch- und Milchhyg., 1900, X (6), March, p. 118: "Die Trichinosis in Gross-Schönau i. Sachsen, bei welcher 50 Personen erkrankt sind, hat ein Opfer gefordert. Die übrigen Erkrankten befinden sich auf dem Wege der Besserung. Der Trichinenschauer hatte seines Amtes in überaus leichtfertiger Weise gewaltet. Die Untersuchung eines Restes des schädlichen Schweinefleisches ergab, dass dasselbe stark mit Trichinen durchsetzt war."

C. GERMAN STATES EXCLUSIVE OF PRUSSIA AND SAXONY

therefore, be assumed that some cases of the disease occurred which are not included in this list. For instance, one outbreak of about 10 cases is known to him, but he can not obtain any printed statements regarding it; hence he is unable to give a published reference as authority, and since this report is a summary of the printed evidence, almost entirely German, this outbreak is intentionally omitted. It might be added that one Prussian outbreak has been omitted for the same reason.

For the States in question, 873 cases, 17 deaths, have been collected, which may be divided, with reference to years, source of infection, etc., approximately as follows:

Summary for Germany, exclusive of Prussia and Saxony, 1881–1898.

1881–1882.		1883–1891.		1892–1898.		1881–1898.	
Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
260	....	437	16	176	1	873	*a* 17
....	....	....	....	160	....	160	(*b*)
256	....	208	....	....	....	464	(*c*)
[256	.........]	[208	.........]	[160	.........]	[624	(*d*)]
....	....	10	5	....	....	10	*e* 5
1	....	160	11	....	....	161	*f* 11
3	....	58	....	16	1	77	*g* 1
....	....	1	....	....	....	1	(*h*)

a Totals divided as follows:

b Due to meat which, it would appear, was inspected and passed as free from trichinæ.

c Due to other defects* in the meat inspection.

*Either inspected or noninspection due to carelessness, or eaten before inspection, etc.

d Total cases and deaths which may be attributed to faults of inspection.

e Definitely stated that meat was not inspected or that no inspection existed; source known.

f Source of infection known, but details regarding inspection not given, or not sufficient to justify conclusion.

g No data given regarding meat, or data insufficient to classify.

h Alleged to have been due to American meat, but evidence not accepted by Virchow.

It will be noticed that during the exclusion of American meat 437 cases, 16 deaths, occurred, an average of 48$\frac{5}{9}$ cases, 1$\frac{7}{9}$ deaths, per year; since its readmission 176 cases, 1 death, are reported, or an average of 25$\frac{1}{7}$ cases, $\frac{1}{7}$ death, showing a decrease of 23$\frac{26}{63}$ cases, 1$\frac{40}{63}$ deaths, per year.

Of the 437 cases during 1883–1891, the source apparently remained undetermined or unreported in 59 cases, representing an average of 6$\frac{5}{9}$ cases per year and 13.5 per cent of the entire number. Of the 176 cases during 1892–1898, the source of 16 cases apparently remained undetermined or unreported, representing 2$\frac{2}{7}$ cases per year or 9.09 per cent of the entire number.

For the period 1883–1891, during which, with the exception of a few months, American pork was excluded, 1 case appears to have been alleged by newspapers to be due to American pork, but Petri and Virchow do not accept the evidence.

It may further be noticed that of the total 873 cases for the years 1881–1898, 624 cases, or 71.4 per cent, may be attributed to various errors of the German inspection.

KINGDOM OF BAVARIA.

1853–1880: 103 cases, 4 deaths.
1881–1898: 50 cases, 2 deaths.

1853–1880.

Summary.—According to Truth (1880, p. 6) there were 97 cases, 4 deaths, from 1853–1879. This included 5 outbreaks in 1878 with 72 cases, and 1 outbreak in 1879 with 5 cases. Ostertag (1899, p. 491) gives Bollinger as authority for the same 97 cases, 4 deaths, in 8 epidemics between 1853 and 1879. During 1880, 6 further cases occurred, in 2 outbreaks of 3 cases each.

1881–1898.

Summary.—For 1881–1898, 50 cases, 2 deaths, have been collected. Of these, 45 cases occurred during the exclusion (1883–1891) of American meats, and 1 case since its reintroduction (1892–1898). The details regarding the source of infection are lacking in the majority of cases, but not a single case has been attributed to American goods.

1881: 3 cases, 0 death.

Schwabach (Bezirk), March .... 2 cases, ? death.

Lochner, 1881, pp. 255, 256: 2 cases.—Wasserfuhr, 1892, p. 154: 3 cases; probably one of these belongs to next entry.—Kerschensteiner, 1893, p. 84.

Wendelstein, Bez. Schwabach, May .... 1 case, ? death.

Lochner, 1881, pp. 255, 256.—Kerschensteiner, 1893, p. 84.

1882: 1 case, 0 death.

Bamberg .... 1 case, ? death.

Wasserfuhr, 1892, p. 154: "Halbgebratenes Schweinefleisch."—Kerschensteiner, 1893, p. 84: At hospital.

1885: 8 cases, 0 death.

Brückenau (Bez.-Amt) .... 3 cases, ? death.

Wasserfuhr, 1892, p. 155.—Kerschensteiner, 1893, p. 84.

Nürnberg (Bez.-Amt) .... 5 cases, ? death.

Wasserfuhr, 1892, p. 155.—Kerschensteiner, 1893, p. 84.

1886: 8 cases, 0 death.

Mellrichstadt (Bez.-Amt) .... 6 cases, ? death.

Wasserfuhr, 1892, p. 155.—Kerschensteiner, 1893, p. 84.

Parsberg (Bez.-Amt) .... 2 cases, ? death.

Kerschensteiner, 1893, p. 84.

1887: 14 cases, 0 death.

Beyreuth (Bez.-Amt) .... 10 cases, ? death.
Wasserfuhr, 1892, p. 155: Raw "Hackbraten."—Kerschensteiner, 1893, p. 84.

Nürnberg, November .... 4 cases, 0 death.
Veröff., 1887, p. 668.—Zeitschr. f. Fleischbeschau u. Fleischprod., 1887, III (2), December, p. 34.—Veröff., 1888, p. 269.—Dr. S., 1888: Sausages from Hersbruck.

1888: 1 case, 0 death.

Oberfranken (Bez.) .... 1 case, ? death.
Wasserfuhr, 1892, p. 155: In an insane patient.—Kerschensteiner, 1893, p. 84.

1889: 1 case, 0 death.

Hochstadt .... 1 case, 0 death.
Wasserfuhr, 1892, p. 155.—Kerschensteiner, 1893, p. 84.

1890: 8 cases, 0 death.

Rehau .... 5 cases, 0 death.
Kerschensteiner, 1893, p. 84: Source traced.—Archiv f. anim. Nahrungsmittelkunde, 1890, V (6), March, p. 75.

Weissenbach .... 3 cases, 0 death.
Kerschensteiner, 1893, p. 85: Source traced. Kerschensteiner also speaks of cases having been diagnosed in Zeitloss, Amt Brückenau, in a decade, but does not specify year.

1891: 5 cases, 0 death.

Lauf .... 1 case, 0 death.
Zeitschr. f. Fleisch- u. Milchhyg., 1891, I (11), August, p. 202: A butcher; from eating raw meat while making sausages. When the meat was inspected it was found to be heavily infested. Two-thirds of it had already been eaten without injury, "weil in Bayern Schweinefleisch nur gekocht genossen wird."

Munich .... 1 case, 0 death.
Veröff., 1894, p. 393: In hospital. No details.

Zeitloss, Unterfranken, B.-A. Brückenau .... 3 ? cases, 0 death.
Zeitschr. f. Fleisch- u. Milchhyg., 1892, II (4), January, p. 81: Several cases. "Ausserdem wird über die Erkrankung mehrerer Personen aus Zeitloss in Unterfranken berichtet." No details.

1894: 1 case, 0 death.

Munich .... 1 case, 0 death.
Veröff., 1896, XX (12), p. 236: Patient between 16 and 30 years old. No further details.—Zeitschr. f. Fleisch- u. Milchhyg., 1896, p. 205.

BRUNSWICK.

1881–1898: 468 cases, 0 death.

Summary.—Monthly health statistics for the Herzogtum Braunschweig may be found in the Monatsblatt für öffentliche Gesundheitspflege, by Dr. R. Blasius, who also gives summaries every one to three years. No cases have been attributed to American meats.

No cases have been collected for the years October, 1877, to September, 1880; January, 1881, to September, 1882; November, 1882, to July, 1885; September, 1885, to July, 1887; October, 1887, to March, 1897; May, 1897, to October, 1899. The cases collected are confined to the following years:

1880, 26 cases, 0 death. No details.

1882, 256 cases, 0 death. Hog either inspected or its noninspection due to carelessness.

1885, 4 cases, 0 death. No details.

1887, 207 cases, 0 death. Hog either inspected or its noninspection not explained.

1897, 1 case, 0 death. No details.

Thus, during the exclusion of American pork, 211 cases were reported, and since its readmission 1 case has become known.

[1880: 26 cases, 0 death.]

Schöppenstedt, December........................ 10 cases, 0 death.

Monatsbl., 1881, IV (1), p. 15: "Von Trichinose wurden 10 neue Erkrankungsfälle aus Schöppenstedt gemeldet." No other details.—Blasius, 1881, p. 50.

Calvorde, October and November .... 16 cases, 0 death.

Blasius, 1881, p. 50.

1882: 256 cases, 0 death.

Brunswick and Koenigslutter, October......... 256 cases, 0 death.

Blasius, 1882, p. 665: "Die Untersuchung ergab, dass kein Verdacht vorlag, dass der p. Geese das Fleisch der gesetzmässigen Untersuchung entzogen oder etwa nicht untersuchtes Fleisch von auswärts bezogen habe, dass aber mit Bestimmtheit anzunehmen war, dass das inficirte Schwein in der Zeit vom 20. bis 27. September geschlachtet wurde. Aus den Schlachthausnotizen constatirte man, dass von dem Schlachter Geese im Schlachthause geschlachtet wurden am * * * und bei sämmtlichen [Schweinen] die Untersuchung auf Trichinen stattgefunden hatte." *From this it would appear that the hog had been inspected and passed as free from trichinæ.* Two hundred and four cases.—Monatsbl., 1882, V (11-12), p. 190: 254 cases in Brunswick and 2 cases in Koenigslutter. Meat from Brunswick.—Blasius, 1883, pp. 96, 97: 204 cases. "Der Schlachter, von dem das trichinenhaltige Fleisch verkauft war, gab an von auswärts kein Schweinefleisch ununtersucht eingeführt zu haben; in dem Schweine mussten so viel lebende Trichinen gewesen sein, nach der Menge der Erkrankungen zu schliessen, dass ein Uebersehen der Trichinen Seitens eines Trichinenschauers nicht anzunehmen ist und wahrscheinlich das Schwein durch ein Versehen im Schlachthause gar nicht zur Untersuchung gekommen war." It appears, therefore, that the hog either was inspected and passed as free from trichinæ, or that through carelessness of the slaughter-house authorities it was designated as inspected but was not inspected when it should have been.—Chatin, 1883, p. 140.—R. Blanchard, 1887, p. 139.

1885: 4 cases, 0 death.

Brunswick, August.............................. 4 cases, 0 death.

Monatsbl., 1885 (11), p. 173.

1887: 207 cases, 0 death.

Brunswick and Holzminden, August–September. 207 cases, 0 death.

Monatsbl., 1887 (11), pp. 181, 183: "In Braunschweig entwickelte sich eine ziemlich ausgebreitete Trichiniasis-Epidemie, auch in Holzminden kamen 6 Erkrankungen vor, die auf dieselbe, den Genuss von Schweinefleisch aus dem Laden einer Schweineschlachterei in Braunschweig, zurückgeführt werden konnten" [p. 181]. "An Trichiniasis erkrankten noch viele Personen in Braunschweig und auch im benachbarten Oelper, so dass im Ganzen in August und September über 200 Fälle angemeldet wurden, von denen keiner tödtlich verlief." [p. 183].—Veröff., 1887, p. 150.—Veröff., 1887, p. 642: 207 cases, German pork; "Die sorgfältigsten, alsbald angestellten Recherchen haben ein besonderes, strafrechtlich zu ahndendes Verschulden eines Einzelnen, bezw. die Umgehung der bezüglich der Fleischschau geltenden Bestimmungen nicht ergeben."—Zeitschr. f. Fleischbeschau u. Fleischprod., 1887, II (12), September, p. 146.—Idem, 1887, III (3), December, p. 34: "Man beschuldigt die auf dem Schlachthofe arbeitenden Trichinensucher, nachlässig ihres Amtes gewaltet zu haben und beabsichtigt, bessere Kontrollmassregeln einzuführen."—Idem, 1888, III (5), February, p. 50.—Blasius, 1889, pp. 136, 137: "Sämmtliche Fälle liessen sich auf eine hiesige Schweineschlachterei, * * * zurückführen. [p. 136]. Die polizeiliche Untersuchung hatte das Resultat, dass das Schwein möglicher Weise das Schlachthaus passirt hatte, es wurden daher noch schärfere und genauere Bestimmungen in Bezug auf die Untersuchung der Schweine im Schlachthaus erlassen [p. 137].—R. Blanchard, 1887, p. 140.—Progrès Méd., September (1887).—Accordingly, it is not definitely demonstrated that the hog was inspected, but it appears to have passed through the slaughterhouse where the inspection is carried on.

1897: 1 case, 0 death.

Brunswick, April .... 1 case, 0 death.

Veröff., 1897, XXI (22), p. 461: No details given.

BREMEN.

1872 to 1880: 65 ? cases, 0 death.
1881 to 1898: 4 cases, 0 death.

1872 to 1880.

Two of these early outbreaks may be considered a moment, since they have been attributed to American pork.

1872.

Stackow, 1873, mentions no cases for this year. The following outbreak in 1873 has by at least one author (Bouley, 1884) been erroneously dated 1872.

1873: 9 or 20 cases, 0 death.

Lorent, 1874, p. 27: Mentions 6 cases in one outbreak and 3 other cases, which he implies were due to American pork, although he does not support this by proofs. (See p. 157 of present report.)

1874: 42 cases, 0 death.

Lorent, 1876, pp. 35, 36: Hog slaughtered July 31. Not alleged to be an American hog. Hastedt, Bremen.

1875, 1876: 0 case.

Lorent, 1877, p. 47: "Erkrankungen an der Trichinenkrankheit sind in den Jahren 1875 and 1876 nicht beobachtet worden."

1877, 1878: 0 case.

Lorent, 1880: No cases found in this report.

1879: 3 cases, 0 death.

Lorent, 1884, II, p. 5: Ham (American?). Apparently inspected and passed as free from trichinæ. (See p. 163 of present report.)

1880: 0 case.

Lorent, 1884, p. 67: (See Geestendorf, R.-B., Stade, Prussia, p. 164 of present report.)

1881-1898.

Summary.—The only cases collected are 4 for the year 1885, when American pork was excluded.

1881-1884: 0 case.

Lorent, 1884, p. 67.—Pauli, 1889.—Bremen, 1884 (1883), 1885 (1880–1884).

1885: 4 cases, 0 death.

Pauli, 1889, pp. 27, 45, 46: Details not complete.—Bremen, 1888, p. 322.—Idem, 1890, p. 164.—Focke, 1889, p. 27: 3 cases.

1886: 0 case.

Pauli, 1889.

1887-1892: 0 case.

Pauli, 1894, p. 40: "Trichinose beim Menschen kam während des Zeitraums von sechs Jahren nicht zur Anmeldung."—Bremen, 1888, 1890, 1892, 1893. (See "Nixe" outbreak, p. 178 of present report.)

1893-1894: 0 case.

Bremen, 1894, 1895.

1895-1898: 0 case.

No Bremen reports accessible to me. No cases collected from other sources.

ALSACE-LORRAINE.

1881-1899: 0 case.

No cases of trichinosis have been found for Alsace-Lorraine for the period 1881–1896. Official reports for several years are lacking.

For the years prior to 1881, 2 outbreaks have been traced, both in the garrison at Diedenhofen. (See p. 161 of present report.)

Turning to the years 1881–1899, the following passages in the official reports may be noticed as showing the feeling regarding the trichina inspection.

Krieger (1889, p. 154) states that trichina inspection has been instituted in Diedenhofen. In the new slaughterhouse in Strasburg, rooms are arranged for a microscopic inspection, but it is not yet decided whether this will take place. He says further (1890, p. 124) that the trichina inspection is to be instituted in Strasburg for meat which is to be eaten raw. Its introduction was almost universally opposed; a proposition was made to exclude all north German pork; the inspection was admitted to be uncertain; the selling of certificates for uninspected meat is mentioned; etc.

Pp. 78, 79, Kreis Schlettstadt: "Die Anfrage des .Bezirkspräsidenten, ob es nothwendig oder [p. 79] wünschenswerth erscheine, die Trichinenschau einzuführen, wird nach dem Gutachten des Kreisarztes und Kreisthierarztes verneint."

P. 79, Kr. Molsheim: "Auch der Molsheimer Gesundheitsrath erklärt, dass man von der Trichinenschau absehen könne; wenn der Import von Schweinen aus Nord-deutschland erfahrungsgemäss vorkomme oder sich der Kontrolle entziehe, sei sie nöthig. Herr Grad führt des Weitern aus, dass die Trichinose bis jetzt in Elsass-Lothringen unbekannt sei und befürwortet ein Einfuhrverbot von Schweinen aus Norddeutschland. Der Gesundheitsrath schloss sich diesen Ausführungen an." (February 11, 1889.)

P. 83, Kr. Erstein: "Der Gesundheitsrath spricht sich dagegen aus, weil sie nicht notwendig sei." (October 12, 1889.)

Pp. 86, 87, St.-Kr. Strassburg: "Der Gesundheitsrath glaubt mit Rücksicht darauf, dass bis jetzt noch keine [p. 87] Fälle von Trichinosis im Unter-Elsass vorgekommen sind, die Einrichtung der Trichinenschau bis zur Herstellung geeigneter Lokale, die im Projekt des neuen Schlachthauses vorgesehen seien, vertagen zu können." (November 6, 1888.)

Pp. 90, 91, Ld.-Kr. Strassburg: "Der Rath ist der Meinung, dass auf dem Lande die obligatorische Trichinenschau nicht [p. 91] nöthig ist, da hier das Schweinefleisch nicht in rohem Zustande genossen wird, und weil die Ausführung derselben auf grosse Schwierigkeiten stossen würde. (Mangel an geeigneten Personen zur Handhabung des Mikroskopes.) In grösseren Städten findet der Rath die Einführung der Trichinenschau wünschenswerth." (December 27, 1888.)

Pp. 95, 96, Hagenau: "3. Trichinenschau: Es wird zunächst der Bericht des Kreisarztes verlesen, wonach jährlich 1,800 Schweine hier geschlachtet, aber nur dasjenige Fleisch auf Trichinen bis jetzt untersucht wurde, welches den Truppen in die Herbstübungen geschickt wird und nach Angabe des Fleischbeschauers, Thierarzt Senfftleben, dasjenige, welches durch Darmreizung und Muskelentzündung bei den Thieren verdächtig war.

"Viele andere Thierkrankheiten veranlassten schon Wegnahme von Thiertheilen, und das machte nach Angabe des letzteren bei den Besitzern, die sich 'über viel strengere Behandlung als Strassburg' beklagten, bereits so viele Schwierigkeiten, dass eine Vermehrung letzterer durch die Trichinenschau die Neuanstellung eines zuverlässigen Gehülfen verlangen würde. Das erklärt der Kreisarzt für zweifellos, da die Durchsuchung der in dem Handbuch von Eulenberg [p. 96] für sichere Kontrole als nöthig erklärten Normalpräparate mindestens 2 Stunden pro Schwein in Anspruch nehme. Er kommt deshalb auf den Vorschlag der 3. Versammlung des Deutschen Vereins für öffentliche Gesundheitspflege in München zurück, durch Untersuchung eines Prozentsatzes der Schweine zunächst feststellen zu lassen, ob Trichinen überhaupt hier vorkommen, inzwischen aber das Kochen des Schweinefleisches zu empfehlen. Er schliesst mit dem

"Antrag: Fleischbeschauer, die durch amtliche Uebung und Probe die Sicherheit im Erkennen der Trichinen dargethan haben, zu beauftragen

"1. eine bestimmte Anzahl (ca. 30 Schweine) in Hagenau, Bischweiler und Niederbronn jedes Jahr genau auf Trichinen zu untersuchen,

"2. von Privaten gegen eine bestimmte Taxe einzelne Fleischtheile, die man roh zu essen liebt, Schinken, Cervelatwürste, aus den durch Harpune eine Anzahl Fleischstückchen zu entnehmen sind, zur Untersuchung auf Trichinen entgegen zu nehmen.

"Der Bericht des Kreisthierarztes geht davon aus, dass auch durch Kochen und Braten grösserer Fleischtheile, wenn es nicht sehr ausgiebig geschieht, nicht alle Trichinen im Innern zerstört würden, und da die Möglichkeit eines Vorkommens von Trichinen hier nicht ausgeschlossen sei, so sei eine obligatorische Trichinenschau mindestens in den grösseren Orten Hagenau, Bischweiler und Niederbronn zu empfehlen. Herr Nessel verhält sich hiergegen im Allgemeinen ablehnend, da man ebenso gut auch die Dörfer würde schützen müssen, auf diesen aber jetzt die Fleischbeschau der reine Humbug ist. Die sogenannten Fleischbeschauer verkauften dort die Fleichsbeschauzettel im Voraus, ohne nur ein Thier zu sehen und ihre daraus fliessende Rente wurde durch eine Trichinenschau nur nutzlos vergrössert werden. Herr Sanitätsrath Levy verhält sich auch ablehnend, weil im Elsass die Trichinose noch nicht vorgekommen. Der Kreisthierarzt wendet gegen beide ein, das eben, weil in Dörfern an eine ordentliche Untersuchung nicht zu denken sei, er Beschränkung auf die Städte vorschlüge. Dass aber Trichinen noch nicht beobachtet seien, beweise nichts; auch in der Pfalz und Lothringen sei das früher nicht der Fall gewesen und *doch seien plötzlich in Speyer und Diedenhofen Epidemien durch einheimische Schweine hervorgerufen worden.* Herr Klein wünscht, der Kreisthierarzt möge zu seiner Information hierüber Untersuchungen machen. Der Vorsitzende erklärt sich für theilweise Untersuchung; der Kreisarzt erläutert seinen Antrag näher und glaubt das Nichtvorkommen von Trichinen hier könne auch durch allgemein üblichen Genuss gekochten Schweinefleisches vorgetäuscht sein. Herr Nessel bemerkt zu dem Antrag des Kreisarztes, dass aber verlangt werden müsse, dass die Sicherheit der Fleischbeschauer im Trichinen-Auffinden vorher amtlich festgestellt werden müsse. Darauf wird der Antrag des Kreisarztes in obiger Fassung angenommen."

P. 100, Kr. Weissenburg: "Der Kreisgesundheitsrath spricht sich gegen die Einführung der Trichinenschau aus, da der Genuss des ungekochten Schweinefleisches nicht gebräuchlich sei, die Einführung der Trichinenschau jedoch eine Vermehrung des Genusses ungekochten Schweinefleisches zur Folge haben könne, die Trichinenschau aber eine vollständige Gewähr für Trichinenfreiheit nicht biete und insbesondere von den ländlichen Fleischbeschauern voraussichtlich nicht mit der genügenden Sachkenntniss und Gewissenhaftigkeit gehandhabt werden würde.

"Gegen die Stimmen der übrigen Mitglieder spricht sich Oberstabsarzt Dr. Oppler für die Einführung der Trichinenschau aus."

P. 124. "Trichinenschau. In Strassburg sind Räume zur Ausführung derselben fertiggestellt. Es soll die Trichinenschau eingeführt werden jedoch beschränkt auf das Fleisch, welches zum Genuss in rohem (ungekochtem) Zustande bestimmt ist. Der Herr Bezirkspräsident hat den unterelsässischen Gesundheitsräthen die Frage vorgelegt, ob die Trichinenschau nothwendig sei, die Frage wurde allseitig verneint."

HAMBURG.

1881–1898: 127 cases, 10 deaths.

Summary.—A full series of health reports could not be obtained. In all, 127 cases, 10 deaths, have been collected from 1881–1898. Of these, 123 cases, 9 deaths, occurred during the exclusion (1883–1891) of American pork; 4 cases, 1 death, since its readmission. Details are lacking in most cases (including the 4 cases, 1 death, since 1892), but not a single case or a death has been attributed to American meats.

1884, February: 50 cases, 0 death.

Veröff., 1886, p. 231: Not stated whether the meat was inspected or not. Source of infection known.

1887, August-September: 99 or 72 cases, 9 deaths.

Veröff., 1887, p. 523: 27 cases.—Idem, p. 533: 57 cases, 4 deaths.—Idem, p. 551: 13 cases, 4 deaths.—Idem, p. 561: 2 cases, 1 death.—Idem, pp. 606, 607, from August 21 to September 15: 72 cases, 9 deaths. Not stated whether meat was inspected or not. Twenty-four cases traced to meat from 3 butchers.—Zeitschr. f. Fleischbeschau u. Fleischprod., 1887, II (12), September, p. 146: 58 cases, 5 deaths, to September 2.—Idem, 1888, III (5), February, p. 49: 72 cases, 9 deaths.

1886.

(See Wansbeck, under Prussia, p. 000.)

1889: No hospital cases.

Hamburg, 1890, I, pp. 14, 15, 18, 19, 23, 28, 88, 131.

1890: 1 case, 0 death.

Hamburg, 1892, II, p. 15: No details.

1891: No hospital cases.

Hamburg, 1894, III, pp. 5, 10, 16, 21, 135.

1892: No hospital cases.

Hamburg, 1894, III, pp. 164, 169, 175, 180, 244, 250, 290.

1893: No hospital cases.

Hamburg, 1896, IV, pp. 5, 10, 16, 21, 27, 87, 92, 154.

1894. Neues allgemeines Krankenhaus: 2 cases, 1 death.

Hamburg, 1896, IV, p. 204: 1 case, 1 death. No details.—Idem, p. 210: 1 case, 0 death. No details.

1895. Neues allgemeines Krankenhaus: 1 case, 0 death.

Hamburg, 1897, V, p. 6: No details.

1896: 1 case, 0 death.

Veröff., 1896, XX (35), August 26, p. 671: Hospital. No details. This case was not found in the Jahrbücher, 1897, V, pp. 126, 154, 224.

LÜBECK.

1881–1898: 0 case.

The Jahres-Bericht des Medicinal-Collegiums for Lübeck for the years 1881–1895, signed by Dr. Rittcher, gives only the deaths from various causes. No deaths are given for trichinosis, and no cases or deaths have been collected from other sources.

THE REST OF GERMANY.

1881–1898: 224 cases, 5 deaths.

Summary.—Of a total of 224 cases, 5 deaths, 54 cases, 5 deaths, occurred during the years 1883–1891. The source of 16 cases was known, but nothing is said regarding inspection. Source of 4 cases, 1 death, is known; meat probably not inspected, as no inspection existed in the town. Six cases, 4 deaths, due to uninspected meats. Twenty-eight cases are given without details, except that some newspapers expressed the view that 1 case was due to American pork. For the years 1892–1898, 170 cases are reported. Of these, 160 cases are alleged to have been due to pork which was inspected and passed as free from trichinæ. The other 10 cases are given without details, except that they occurred in a place where inspection does not exist.

[1871: ? 1 case.]

[**Rostock** .... 1 ? case, ? death].

According to Bouley (1884, p. 395), a case of trichinosis is alleged to have occurred in Rostock in 1871, and was attributed to American meats. Petri, however, according to Virchow (1884) (see p. 184 of the present report), definitely states that no case of this disease appears to have been known in Rostock for sixteen years prior to his statement [1869–1884], except 1 alleged case in 1883.

1881, 1882: No cases collected.

1883: 15 cases, 0 death.

Friedburg in Hessen, February .... 4 ? cases, 0 death.

Merkel, 1885, p. 351: Patient was not really sick, but had eaten trichinous sausage. Several other persons were sick.

Rostock, Mecklenburg-Schwerin .... 1 case, 0 death.

Virchow, 1884. (See p. 184 of present report.) A soldier stationed in Rostock was in Tessin on leave and became infected with trichinosis. The disease did not show itself until he returned, and "so came about those newspaper reports and newspaper views that he had become infected in Rostock from eating American pork." No serious reliance can be placed upon such newspaper evidence.

Tessin, Mecklenburg-Schwerin .... 10 ? cases, ? death.

Virchow, 1884, p. 540: After Petri, see above (Rostock), also p. 184 of this report. "Many" cases.

1884, 1885: No cases collected.

1886: 12 cases, 2 deaths.

Waldenburg i. S. .... [? case, ? death].

Zeitschr. f. Fleischbeschau u. Fleischprod., 1886, II (3), December, p. 39: "In Waldenburg i. S. [=Saxony? or Silesia?] sind mehrere Fälle von Trichinosis, darunter eine sehr schwere Erkrankung, vorgekommen." Perhaps this refers to the Alt-Waldenburg (Saxony) outbreak, see p. 137.

Ruppersdorf bei Lobenstein (Reuss-Schleiz?) .. 12 ? cases, 2 deaths.

Zeitschr. f. Fleischbeschau u. Fleischprod., 1886, II (1), October, p. 9: "In Ruppersdorf bei Lobenstein und in den angrenzenden Ortschaften ereigneten sich zahlreiche Erkrankungen; 12 Personen liegen schwer krank darnieder und 2 Personen, Frau und Tochter des Fleischers und Wirthes, welcher das trichinöse Schwein schlachtete und verkaufte, sind gestorben." Source known.

1887: No cases collected.

1888: 17 cases, 0 death.

Nienburg a. S. (Anhalt?)........................ 17 cases, 0 death.

Archiv f. anim. Nahrungsmittelk., 1888, IV (1), October, p. 16: "Die Tagespresse berichtet, dass in Nienburg a. S. 17 Personen an der Trichinosis erkrankt seien." No details.

1889–1890: No cases collected.

1891: 10 cases, 5 deaths.

Auerbach a. d. Bergstrasse, Hessen................ 4 cases, 1 death.

Zeitschr. f. Fleisch- u. Milchhyg., 1891, I (8), May, p. 142: No trichina inspection here.—Archiv f. anim. Nahrungsmittelkunde, 1891, VI (8), p. 119: "An Trichinose ist hier eine Frau gestorben. Der betr. Metzger, von welchem die trichinöse Wurst gekauft war, soll ebenfalls mit dreien seiner Leute schwer krank darniederliegen."—Idem (10), July, p. 142: 4 cases, 1 death. Official statement by Dr. Heumann.

Themar, Sachsen-Meiningen.................... 6 cases, 4 deaths.

Zeitschr. f. Fleisch- u. Milchhyg., 1891, I (10), July, p. 183: Meat not inspected.—Archiv f. anim. Nahrungsmittelk., 1891, VI (10), July, p. 142: 6 cases, 4 deaths.

1892: No cases collected.

1893: 10 cases, 0 death.

Meuselwitz, Saxe-Altenburg.................... 10 ? cases, 0 death.

Zeitschr. f. Fleisch- u. Milchhyg., 1893, IV (4), December, p. 60: "In dem Altenburgischen Städtchen Meuselwitz ist eine grosse Anzahl von Personen an Trichinosis erkrankt. Trichinenschau besteht in M. nicht." No inspection here. Details not given.

1894–1897: No cases collected.

1898.

Sandersleben, Anhalt........................ 160 cases, 0 death.

Zeitschr. f. Fleisch- u. Milchhyg., 1898, X (2), November, p. 39: "In Sandersleben liegen gegen 160 Personen nach Genuss angeblich untersuchten Schweinefleisches an Trichinosis darnieder." *Meat said to have been inspected and passed as free from trichinæ.*

Part III.—EUROPEAN CASES OF TRICHINOSIS OF ALLEGED AMERICAN ORIGIN (Stiles).

The question as to how many cases of trichinosis in Europe have actually been traced to American meats is by no means a new one. It has been discussed in Germany, particularly by Virchow, Fränkel, and Wasserfuhr; in France, particularly by Brouardel, Bouley, Chatin, and R. Blanchard; and in America, particularly by Salmon. While the alleged cases in Germany alone need be considered for the question now under discussion, it may be well to mention all of the European cases which have been collected regarding which it has ever been intimated or alleged that they were of American origin. Unfortunately the original literature in connection with several outbreaks is not accessible to the writer, and regarding certain other outbreaks the published data are exceedingly meager and incomplete. It should be noticed that, with the exception of the *Nixe* outbreak (1891), the Mecklenburg (1897) and Oberplanitz (1898) cases, all of the alleged cases belong to "past history." In fact, only the Mecklenburg and Oberplanitz cases come into consideration at all in connection with the subject of American certified pork. The publisher of the Mecklenburg cases afterwards contradicted the report, while the American origin of the Oberplanitz case is not supported by the slightest evidence.

So far as it has been possible to gather from the literature consulted, the following appears to be a complete list of the European cases of trichinosis which have been intimated as due to or alleged to be due to American pork. If other cases have been so reported, the fact has escaped my attention:

Date.	Locality.	Cases.	Deaths.	Reference to discussion in this report; remarks.
1864	Altona, Germany	1	0	P. 157. Contracted and recovered in America.
1871	Rostock, Germany	1	0	P. 157. Evidence not accepted by Virchow.
1873	Bremen, Germany	20	0	P. 157. Evidence incomplete.
1874	Altona, Germany	4	0	P. 160. Evidence incomplete.
1874	London, England	1	0	P. 160. Contracted in New York.
1877	Diedenhofen, Germany	109	9	P. 161. Evidence absurd.
1878	Crépy-en-Valois, France	21	1	P. 163. French hog.
1879	Bremen, Germany	3	0	P. 163. Evidence incomplete. **Meat apparently inspected in Bremen.**
1879	Ship *Cornwall*, England	43	1?	P. 164. Not trichinosis.
1880	Geestendorf, Germany	7	0	P. 164. Imported live hog. **Meat apparently inspected in Germany.**
1880	Brussels, Belgium	1	0	P. 165. Only conjecture.
1880	Barcelona, Spain	(?)	6	P. 165. Evidence incomplete.

Date.	Locality.	Cases.	Deaths.	Reference to discussion in this report; remarks.
1881	Madrid, Spain	(?)	6	P. 166. Evidence incomplete.
1881	Chemnitz, Germany	1	0	P. 167. Evidence incomplete; alleged to have been contracted on trans-Atlantic voyage.
1881	Düsseldorf, Germany	16	3	P. 167. Evidence not admitted by Virchow, Hertwig, Brouardel, Wasserfuhr, or Fränkel.
1882	Prov. Liège, Belgium	11	0	P. 173. Can not be traced.
1882	Marshall (?)	(?)	3	P. 173. Can not be traced.
1883	Cologne, Germany	1	0	P. 173. Can not be traced, unless it refers to a cat.
1883	Malaga, Spain	1	1	P. 174. Evidence incomplete.
1883	Valencia, Spain	6	1	P. 177. Evidence incomplete.
(?)	Cologne, Germany	7	(?)	P. 178. Can not be traced. Evidence not admitted by Wasserfuhr.
1891	Bremen bark *Nixe*	17	0	P. 178. Due to South American *fresh* pork.
1897	Mecklenburg, Germany	(?)	(?)	P. 180. Report afterwards contradicted by its publisher.
1898	Oberplanitz, Germany	1	0	P. 181. Not supported by the slightest evidence.

Altona, Germany, 1864 .... 1 case, 0 death.

Groth (1864, pp. 602–609) refers to a German woman who contracted the disease in America in 1856; afterwards returning to Germany, she died in 1864, and incapsulated trichinæ were found. Timm (1864, pp. 447, 448) also refers to the same patient. Thus this case belongs to American, not to European, statistics, and has no bearing whatever on the American pork question in Europe.

Rostock, Mecklenburg-Schwerin, 1871............. 1 case, ? death.

According to Bouley (1884, p. 395) a case of trichinosis occurred in Rostock in 1871 which the German Government attributed to American pork. Thus far I have been unable to trace this case, but Virchow (1884) discusses trichinosis in Rostock and evidently does not credit the alleged case to American origin. (See p. 184 of this report.)

Bremen, Germany, 1873 .... 9 or 20 cases, 0 death.

A number of authors have referred to an outbreak in Bremen which is alleged to have been due to American meat. The following references are the most important ones found in regard to it.

Lorent, 1874, p. 27: "By such frequent findings [of trichinæ] in American hams, instances of carelessness have not been lacking, which resulted in cases of trichinosis. Nine times trichinosis has been diagnosed by various physicians. At one time 6 persons became sick from the same sources; the other 3 cases were single. All of the cases were light. The severer case resulted from eating lean meat. Recovery in all cases."[1]

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[1] "Bei so häufigem Befunde in Amerikanischen Schinken hat es nicht an Unvorsichtigkeiten gefehlt, in deren Folge Trichinenerkrankungen vorgekommen sind. Von verschiedenen Aerzten sind 9 mal Trichinen-Erkrankungen constatirt worden. Einmal erkrankten 6 Personen aus einer Quelle, die drei übrigen Fälle waren Einzelerkrankungen. Die Erkrankungen waren durchgehends leicht, für die intensivere Erkrankung war der Genuss des mageren Schinkenfleisches maassgebend. In allen Fällen trat Genesung ein."

These are apparently the same outbreaks mentioned by Focke (1873, p. 191), as follows:

"Dr. G. W. Focke announces from Bremen that the first cases of trichinosis after eating imported North American pork have been observed in that city. A smoked shoulder, purchased at an auction, infected twelve persons. The youngest persons, ten or twelve years old, were least affected; the older patients suffered more. Later, further cases, caused by other hams, were observed and the patients already number more than twenty. Examination always showed the presence of numerous living trichinæ, which leads to the suspicion that in the large abattoirs of North America the hogs have access to the offal, that they thus become infected, and later, when they are themselves slaughtered, add to the infecting offal. In this manner the evil must spread and increase rapidly, and people should be especially warned against eating raw American pork. The so-called rapid-smoking process had evidently killed the trichinæ in the peripheral portions of hams, as the capsules had swollen and assumed an oval form and the worms had become opaque and granular. Nearer the bone, however, the meat was raw and the parasites intact."[1]

Roeper, 1874, p. 282: "The Berliner klinische Wochenschrift reported, a short time ago, a trichinosis epidemic in Bremen, where, as a result of eating American pork, more than 20 persons became sick." * * *[2]

Chatin, 1883, p. 134: "The recollection of this epidemic ought to suffice to convince the optimists who affirm that no danger would result from the use of American salted meats. Forty [see original records] persons were affected with a grave trichinosis determined by a ham of American origin."[3]—*Idem, p. 210.*

Fraenkel, 1891, p. 1388: "It has now been shown that in those countries in which a prohibition of American pork has never existed, and no special inspection of the imported wares takes place, and every year large quantities of this food are consumed, for example, in England, Belgium, Holland, etc., trichinosis in man either belongs to the greatest rarities or does not occur. And, just the same, it is a fact that in those lands which have, or did have till recently, a prohibition, *before the promulgation of* such decrees, cases of trichinosis in man which can be blamed with certainty upon American pork are to be placed among the very rare exceptions. The latter results with perfect clearness especially from the exceedingly careful and learned examination, which R. Virchow has published in detail in volume 95 of his Archives, of the cases of trichinosis of alleged American origin. He showed that, upon closer examination, the great majority of the reports in question vanished into nothing, and that only two of them retained a tangible form. One was the Bremen epidemic described by Dr. Focke. Twelve or nine persons are said to have become sick after the consumption of an American ham obtained at an auction. At the same time two additional cases occurred in Dr. Göring's practice, after the consumption of a salted ham smoked in Bremen. These communications are in truth as indefinite as possible.[1] * * *"

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[1] "Dr. G. W. Focke meldet aus Bremen, dass dort die ersten Fälle der Trichinose, nach dem Genusse von importirtem nordamerikanischen Schweinefleisch entstanden, beobachtet wurden. Ein in Auction erstandener geraücherter Vorderschinken inficirte 12 Personen; die jugendlichsten, 10–12 Jahre alten waren am leichtesten erkrankt, ältere litten schwerer. Später wurden weitere Erkrankungsfälle, aus anderen Schinken herrührend, beobachtet, und stieg die Zahl der Erkrankten bereits über 20. Die Untersuchungen ergaben immer häufiger massenhaftes Vorkommen von lebenden Trichinen, was auf den dringenden Verdacht führt, dass in Nordamerika auf den grossen Schlächtereien die zugetriebenen Schweine über den Schlachtabfall gerathen können, sich hier gelegentlich inficiren, und später selbst geschlachtet, nun inficirende Beiträge zu dem Schlachtabfalle liefern. Danach würde das Uebel in ausgedehntester und rapider Weise zunehmen müssen, und ist vor jedem Genusse rohen amerikanischen Schweinefleisches dringend zu warnen. Es hatte die sogenannte Schnellräucherungsmethode in dem beregten Schinken wohl die peripherischen Trichinen getödtet, indem die Kapseln, aufquellend, eine Eiform angenommen hatten, und die Würmer undurchsichtig und körniger geworden waren. Weiter gegen den Knochen hin war jedoch das Fleisch ganz wie roh und die Thierchen intact."—*Berl. klinische Wochenschrift, 1873, X (16), April 21, p. 191.*

[2] "Die 'Berliner Klinische Wochenschrift' berichtete nämlich vor einiger Zeit von einer Trichinenepidemie in Bremen, wo in Folge des Genusses von amerikanischem Schweinefleisch über zwanzig Personen erkrankten. Ich werde den Bericht, da er mir noch zu einem anderen Zwecke dienen soll, später wörtlich mittheilen."

[3] "Le souvenir de cette épidémie devrait suffire à convaincre les optimistes qui affirment que nul danger ne saurait résulter de l'usage des salaisons américaines; quarante personnes furent atteintes de trichinose grave déterminée par un jambon de provenance américaine." [Outbreak erroneously dated 1875.]

Ostertag, 1899, p. 506: "In Bremen, according to Roeper [see above] 40 [see above, 20] persons were taken sick with trichinosis who had eaten *only* [see above] American hams."[2]

Ostertag apparently does not refer to Roeper, 1874, p. 282, since Roeper does not state "40," but "more than 20," nor does he say that they had eaten "only" American meat. In connection with this outbreak, see also Virchow's remarks quoted on p. 182.

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[1] "Es hat sich nun gezeigt, dass in denjenigen Ländern, in welchen niemals ein Einfuhrverbot für amerikanisches Schweinefleisch bestanden hat, auch eine besondere Untersuchung der eingebrachten Waaren nicht stattfindet und alljährlich sehr erhebliche Mengen dieses Nahrungsmittels verzehrt werden, z. B. in England, Belgien, Holland u. s. w., die menschliche Trichinose entweder zu den grössten Seltenheiten gehört oder überhaupt nicht vorkommt. Und ebenso ist es eine Thatsache, dass in denjenigen Ländern, welche ein Einfuhrverbot besitzen bezw. bis vor kurzem besassen, vor Erlass desselben Fälle von Trichinenerkrankung beim Menschen, die mit Sicherheit dem Genuss von amerikanischem Schweinefleisch zur Last gelegt werden könnten, unter die sehr grossen Ausnahmen zu rechnen sind.

"Es ergiebt sich das letztere mit vollständiger Deutlichkeit namentlich aus der überaus sorgfältigen und gewissenhaften Prüfung, welche R. Virchow den angeblich auf amerikanischen Ursprung zurückzuführenden Fällen von Trichinose hat angedeihen lassen, und über welche er im Bd. 95 seines Archivs eingehend berichtet. Er ermittelte, dass die grosse Mehrzahl der betreffenden Angaben sich bei näherem Zusehen in nichts auflöste, und dass nur zwei derselben eine etwas greifbarere Gestalt behielten. Die eine betraf eine von G. W. Focke (Berl. klin. Wochenschrift 1873, p. 191) beschriebene Epidemie aus Bremen; 12 oder 9 Personen sollten nach dem Genuss eines amerikanischen, in einer Auction erstandenen geräucherten Vorderschinkens erkrankt, niemand der Infection zum Opfer gefallen sein. Zu gleicher Zeit seien in der Praxis des Dr. Göring zwei weitere Erkrankungsfälle vorgekommen, und zwar nach dem Genuss eines gesalzenen, nachträglich in Bremen geräucherten Schinkens. Diese Mittheilungen sind in Wahrheit so unbestimmt wie möglich und geben Virchow Veranlassung zu der Bemerkung: 'Obwohl mir Dr. Focke persönlich als ein wissenschaftlich gebildeter Arzt bekannt war, so vermag ich doch mein Erstaunen nicht darüber zu unterdrücken, dass er der einzige geblieben ist, der nicht nur lebende Trichinen in amerikanischen Schinken, sondern sogar' immer häufiger, massenhaftes Vorkommen 'derselben constatirt hat.' "—*Deutsche med. Wchnschr., 1891, XVII (51), Dec. 17, p. 1388.*

[2] "In Bremen sind nach Röper 40 Personen, welche nur von amerikanischen Schinken genossen hatten, an Trichinose erkrankt."

Altona, R.-B. Schleswig-Holstein, Germany, 1874.. 4 cases, 0 death.

In connection with this Regierungs-Bezirk (see p. 123), it may be well to refer to a small outbreak in 1874 which was alleged to be due to American pork. Bockendahl (1875, p. 10) records it as follows:

> "Several members of a family (three adults and a 4-year-old child) were taken sick as the result of eating a ham which a sailor had brought with him from New York and given to his fiancée. The sailor himself was on board and underway when the disease broke out. Symptoms appeared twelve days after the meat was eaten. All patients recovered. The rest of the ham, which had been cooked, contained numerous encapsuled trichinæ." [1]

Regarding this outbreak, the following points are to be noticed: First. These patients ate some ham, evidently raw, and were taken sick twelve days later. It is not stated whether, during or preceding these twelve days, any other pork was eaten. Hence the evidence that the patients became sick as a result of eating from a particular ham twelve days before the symptoms appeared is by no means demonstrated, although it must be admitted that it might easily have been that particular ham which gave rise to the infection. Second. Numerous encapsuled trichinæ were found "in the rest of the ham, which had been cooked." Here it is necessary to admit the possibility that the trichinæ in that particular ham might have been alive before the ham was cooked, but no such fact was demonstrated. Third. This ham is said to have been brought by a sailor from New York. Even if this statement is correct, no case is demonstrated against American pork, for, as stated above, no record exists eliminating other pork.

Summarizing the Altona cases, it is necessary to admit that, from the data at hand, it looks as if these four cases of trichinosis might possibly have been due to eating American pork, but it may be maintained that at present the data at hand point only to suspicion, and that it is not demonstrated that American pork was the cause of this small and light epidemic, which occurred years before the certification of American meats.

London, England, 1874 ....1 case, 0 death.

A case in London, 1874, was reported by Sydney Coupland. A patient who died in Middlesex Hospital showed an enormous infection of trichinosis. One grain of the muscle of the thigh was found to contain 180 of the cysts, "so that (roughly speaking) the man must have been the host of about 75,000,000 of these parasites." The last paragraph of Coupland's article reads as follows:

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[1] "Durch einen von einem Seemann aus New York mitgebrachten Schinken, welchen er seiner Braut in Altona schenkte, erkrankten mehrere Familienmitglieder, 3 Erwachsene und ein 4jähr. Kind. Der Seemann selber war, als die Krankheit ausbrach, bereits wieder an Bord und unterwegs: 12 Tage nach dem Genuss Krankheitserschneinungen; alle genesen; der Rest des Schinkens, welcher gekocht gewesen war, enthielt massenhaft eingekapselte Trichinen."

> "It is highly probable that the patient contracted the disease nine years ago in New York, where he stayed eighteen months, for during that time he had an attack of 'enteric fever,' which was said to have nearly 'lost him his life.' He was left in a very prostrate condition for more than twelve months, and his health had never been fully restored."—*Coupland, 1874, pp. 262, 263.*

From this quotation of Coupland, who originally reported the case, it will be seen that this case has no bearing whatever upon the importation of American pork into Europe. The case should be counted among the American, not the European, outbreaks.

Diedenhofen, Germany, 1877 .... 109 cases, 9 deaths.

Quite an extensive outbreak occurred in 1877, of which Zündel (1879, p. 24) gives the following account in his official report (italics not in the original):

> "Trichinosis was recognized in May among the troops at Diedenhofen. More than a hundred of them were taken sick. *The infection seems to have been caused by two local hogs, the meat of which was bought by the soldiers and eaten raw.* Their sickness was, however, rather mild, and of the 102 military patients only 7 died; of 7 civilians who became sick at the same time, 2 died. The swine of both pens from which the infected animals came were examined for trichinosis. Part of them were examined alive, part dead, but no trichinæ were found. It should be remarked that last year some soldiers of the garrison were taken sick with trichinosis as a result of eating sausage which was sent from Brandenburg."[1]

In a footnote evidently added during proof reading, Zündel says:[2]

> "More recent inquiry shows that besides the fresh pork there was also some American ham in the meat salad which caused the infection."

In his next report Zündel (1880, p. 39) makes the following statements:

> "Trichinæ also have not yet been found in local hogs, nor in living hogs which have been imported into this region. This is for the most part to be accounted for by the

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[1] "Die Trichinose wurde zu Diedenhofen im Mai unter den Soldaten erkannt; mehr denn hundert von diesen sind erkrankt. Die Infection scheint durch zwei einheimische Schweine verursacht, deren Fleisch von den Soldaten gekauft und roh genossen worden war. Die Krankheit war jedoch ziemlich gutartig und von den 102 erkrankten Militärs sind nur 7 gestorben; von 7 zu gleicher Zeit erkrankten Civilpersonen sind 2 gestorben. Die Schweine der beiden Gehöfte, aus welchen die inficirten Thiere gekommen waren, wurden auf Trichinen untersucht, und zwar theils lebend, theils geschlachtet; es sind bei ihnen keine Trichinen gefunden worden. Zu bemerken ist, dass im Vorjahre schon einige Soldaten der Garnison an Trichinose erkrankten in Folge des Genusses von Würsten, welche aus Brandenburg geschickt worden waren. Es wurde angeordnet, dass die in der Abtrittsgrube des Lazareths während der Seuche gesammelten Faeces nicht direkt auf die Aecker geführt wurden, sondern in eine gedeckte Grube; es lag nämlich die Möglichkeit vor, dass unter den Abfuhrstoffen lebende und befruchtete Darmtrichinen vorhanden seien, welche auf der Weide von Schweinen hätten verschluckt werden können."—*Zündel, 1879, p. 24.*

[2] "Neuere Recherchen haben dargethan, dass unter dem Fleischsalate, durch welchen die Infection verursacht wurde, neben dem frischen Schweinefleische auch solches von amerikanischen Schinken sich befand.

fact that the fresh meat is only seldom examined microscopically for this worm, and those worms which might be present are therefore not seen. *Further, however, any such worms which might be found in our hogs are not dangerous, and have never caused an infection in man in this locality, probably because meat is eaten only when it is well cooked.* In American pork, which is now so common on the market, trichinæ are, on the other hand, frequently found, and it is assumed that of 100 pieces of salted or smoked meat or bacon, 2 are trichinous. These trichinæ in American meat are, however, often dead and accordingly not capable of reproduction, and not dangerous. Experiments made on hogs in Diedenhofen and in Basel with American meat which was very trichinous were absolutely negative. Similar experiments in Strassburg upon rabbits also gave four negative results. These experiments are, however, not sufficient to suppose the safety of all American trichinous pork, as instances of heavy infection from such meat (*for example last year among the troops in Diedenhofen*) are known."[1]

It must be confessed that it is difficult to follow the process of reasoning used by this German official. After making the explicit statement that the meat which caused the epidemic at Diedenhofen in 1877 was eaten raw, and seems to have come from two local hogs, also the equally explicit statement that there was also an outbreak in the garrison in 1876, caused by sausage from Brandenburg, he claims that "any such worms [trichinæ] which might be found in our [Alsatian] hogs are not dangerous, and have never caused any infection in man [Menschen] in this locality, probably chiefly because meat is eaten only when it is well cooked." We shall not stop to show that, since Zündel has not proved that the epidemic of 1877 was not due to the two local hogs, the logical conclusion from his remarks is either (1) that the garrison was not composed of human beings, or (2) that the year 1877 never existed, or (3) that well-cooked meat is the same as raw meat.

As nearly as can be made out, Zündel has reasoned as follows:

1. One outbreak of trichinosis occurred in Diedenhofen among the troops in 1877, as a result of eating raw pork.

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[1] "Auch Trichinen sind bis jetzt auf einheimischen Schweinen noch nicht gefunden, so auch nicht auf den fremden hier lebendig eingeführten Schweinen. Es kommt dies wohl meist daher, dass das frische Fleisch nur selten auf diese fadenförmige Würmchen microscopisch untersucht und dass daher etwa vorhandene Trichinen nicht gesehen werden. Aber auch diese etwa bei unsern Schweinen vorhandenen Trichinen sind nicht gefährlich, haben hier zu Land *nie* eine Infection bei Menschen verursacht, wohl weil das Fleisch nur gut durchgekocht verspeist wird.

"In dem amerikanischen Schweinefleisch, welches jetzt so massenhaft im Handel ist, werden hingegen Trichinen häufig gefunden und man nimmt an, dass auf 100 Stück gesalzenen oder geräucherten Fleisches oder Specks 2 Mal Trichinen vorhanden sind. Diese Trichinen in amerikanischem Fleisch sind aber sehr oft todt, also nicht mehr fortpflanzungsfähig und gefährlich.

"In Diedenhofen und in Basel vorgenommene Fütterungsversuche mit amerikanischem Fleische, welches sehr trichinös war, blieben bei Schweinen ganz erfolglos; gleiche Versuche in Strassburg mit Kaninchen hatten ebenfalls ein negatives Resultat. Diese Versuche genügen jedoch nicht, um die Unschädlichkeit von allem amerikanischen trichinösen Schweinefleische anzunehmen, da doch Thatsachen von Masseninfectionen (z. B. im Vorjahre beim Militär in Diedenhofen) durch solches Fleisch vorliegen."—*Zündel, 1880, p. 39.*

2. Raw pork is never eaten in this locality; only well-cooked pork is eaten.

3. Two local hogs furnished the fresh meat used, and some American-cured pork was also mixed with it.

4. The trichinæ in American cured pork are often dead, and accordingly not capable of reproduction and not dangerous.

5. Experiments with American trichinous pork at Diedenhofen, Basel, and Strassburg (he might have added many other experiments in this line made in Europe) were absolutely negative.

Therefore—

1. The German hogs which furnished the fresh meat in the Diedenhofen epidemic (and which were not examined) were free from trichinæ.

2. Even if they had had trichinæ, these parasites in hogs of this particular region would not have been dangerous, and could not have caused the outbreak, because raw pork is never eaten here.

3. The American-cured pork (which was also not examined) contained live trichinæ.

4. These American trichinæ must have caused the outbreak.

5. Cooking kills the trichinæ in hogs of this locality, but not in American pork.

Further it will be noticed (see p. 151 of this report) that in 1889, the Kreisthierarzt of Hagenau admits that this outbreak was due to German meat.

Is it necessary to discuss this outbreak further? An analysis of Zündel's statement shows that there is absolutely no ground whatever for asserting that the Diedenhofen outbreak was due to American pork.

Crépy-en-Valois, France, 1878.................. 17 cases, 1 death.

The assertion that this outbreak was due to American meat is absolutely without the slightest foundation.

Laboulbène, 1881, pp. 206–216: French hog.—Chatin, 1883, pp. 134–137: French hog.—Salmon, 1884, p. 478: French hog.—Fränkel, 1891, pp. 1388, 1389: see p. 000 of present report.—Blanchard, 1887, p. 140: French hog.—Wasserfuhr, 1891, p. 250: French hog.

Bremen, Germany, 1879......................... 3 cases, 0 death.

Lorent (1884 (II), p. 5) records an outbreak due to a *ham which was inspected and passed as free from trichinæ.*[1] He does not state whether this was alleged to be an American or an European ham. Virchow (1884, p. 563) records three cases, diagnosed by Dr. Loose and attributed to American ham (see p. 182 of the present report). No detailed data are given upon which a final opinion may be based.

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[1] "Ein amtlich bestellter Fleischbeschauer hatte im Jahre 1879 einen Schinken für trichinenfrei erklärt, durch dessen Genuss bei 3 Personen eine ganz leichte Erkrankung an Trichinosis entstand. Nachdem eine medicinalamtliche Nachuntersuchung des Schinkens ergeben hatte, dass von 14 untersuchten Präparaten 10 trichinenhaltig waren, hatte sich derselbe wegen fahrlässiger Körperverletzung vor dem Strafgerichte zu verantworten, welches ihn schuldig fand und zu M. 150 Geldstrafe oder entsprechendem Gefängniss verurtheilte."

School-ship "Cornwall," England, 1879....... [43 cases, 1 ? death].

This outbreak was afterwards shown not to be trichinosis.—Power, 1880; Cobbold, 1882, p. 6.—Chatin, 1883, pp. 138, 210: It appears that Chatin considers this a case of trichinosis due to American pork.—Cobbold, 1884: Not trichina but *Pelodera teres*.—Salmon (1885, pp. 479, 485), in describing this outbreak, says:

> "The so-called outbreak of trichiniasis on board the English reformatory school-ship *Cornwall* has been much quoted as illustrating the danger of American salted pork, but when closely investigated it proves to be an illustration of jumping at conclusions without evidence, as always seems to have been the case where trichiniasis has been attributed to our meats. This outbreak of disease occurred between September 23 and October 23, 1879, and 43 boys were attacked, out of a total of 262 boys and 15 officers on the ship. The idea that the disease was trichiniasis seems to have been an afterthought, for the only examination made was of the body of one of the boys two months after it had been buried. Drs. Powell and Cory thought they found trichinæ in the muscles and concluded the disease must have originated from the American pork which was used on board the ship; but no examination of this pork appears to have been made, and we are not at all certain that English pork was not used as well. Fortunately, specimens taken from the corpse were submitted for examination to that well-known scientist, Dr. Charlton Bastian, and he pronounced the worms not trichinæ at all, but a hitherto unknown nematoid, which he classed with the genus *Pelodera*, calling the species *Pelodera setigera*. Dr. Cobbold, who is one of the very best authorities on this subject, asserts very positively that the worm was the *Pelodera teres*, and had probably invaded the body after death. As this worm has never been known to exist as a parasite in the hog, the assumption that the disease was produced by eating pork is an entirely gratuitous one, and the further assumption that it was due to American pork is evidently without the least foundation. * * *
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> * * * * * * *
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> "Another was the disease on the English ship *Cornwall*, which was at first supposed to be typhoid fever, and was only decided to be trichiniasis when a body was exhumed two months after burial, and worms, which the examining physician took to be trichinæ, were found in the muscles. But we have it on the very best authority that these worms were not trichinæ, and there is no evidence even that they caused the disease. The most probable theory is that they gained access to the body after burial."

Geestendorf, R.-B. Stade, 1880...........More than 7 cases, 0 death.

An outbreak in 1880 in Geestendorf deserves a moment's attention. According to Lorent (1884 (I), p. 67), more than 7 cases, 0 death, occurred, which were due to an American hog imported alive. The hogs were "*not sufficiently* inspected," from which it would appear that the outbreak was due to meat inspected in Germany and passed as free from trichinæ. Lorent says:

> "Im October 1880 wurden bei einem hier geschlachteten Schweine Trichinen gefunden. Dasselbe gehörte einer Partie Schweine an, welche ein Viehhändler aus Hannover mit dem Dampfer "Kronprinz" von Amerika hatte kommen lassen, und war dasselbe hier verkauft worden. Der Fleischbeschauer hatte unter 90 Objecten 3 Trichinen gefunden. In Bremerhaven war diese Einfuhr lebender amerikanischer

Schweine nicht ohne Folgen gewesen. Es wurde durch die Untersuchung erwiesen, dass Fleisch verkauft worden war, ohne dass die erforderliche mikroskopische Untersuchung vorgenommen war, was auch zur Bestrafung des Verkäufers führte. Ein Schlachter in dem Nachbarorte Geestendorf hatte im October von den eingeführten Schweinen sechs halbe gekauft, bei denen die Trichinenschau ungenügend vorgenommen war. Ein Theil des Fleisches wurde verkauft, der Rest in der eigenen Familie genossen. In letzterer sind vier der Mitglieder an Trichinose erkrankt und ausserdem noch in drei Familien eine Anzahl Erkrankungen vorgekommen."

This outbreak can have no bearing on the American pork question, as the hog was imported alive; and, further, it was apparently inspected in Germany and passed as free from trichinæ.

Brussels, Belgium, about 1880.................... 1 case, 0 death.

Boulengier (1887, pp. 201–204) records a case in hospital where trichinæ were found postmortem. It is argued that the infection must have taken place about seven years previously and that the after symptoms had lasted a long time. Under these circumstances trichinosis can hardly be looked upon as the direct cause of death. The patient was a German who had lived in Belgium since 1870. Boulengier intimates[1] that he believes the man became infected from American pork, but this is simply a supposition on his part, and proof is totally lacking.

Barcelona, Spain, 1880.......................... ? cases, 6 deaths.

According to Blanchard (1887, p. 142) 6 persons died in Barcelona after eating American pork. The details regarding this outbreak I have not yet been able to trace, but Somoza (1880, p. 355) refers to outbreaks in Villar del Arzobispo (1876: 28 cases, 6 deaths), Lora de Estepa (1878: 6 cases, 3 deaths), Sevilla, Cadiz, Barcelona, and other places, and remarks further on:[2]

> "* * * But it is the case that all the observations of trichinosis in our peninsula have been traced back to hogs born and bred in Spain."

Judging from this quotation, the Barcelona outbreak can hardly be looked upon as having been definitely traced to American pork.

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[1] "Le diagnostic était donc de plus évident; il s'agissait d'un cas d'entérite suraigue ou de choléra nostra sporadique * * * Il aimait à s'isoler et le moindre effort lui était immédiatement à charge: bref une lassitude générale chronique, habituelle. Il nous sera possible, d'après les données que nous fournira l'autopsie et les lésions musculaires de la trichinose, de rapporter ces derniers symptômes à la trichinose chronique (p. 204), que dans le courant de l'année 1880 il s'est plaint, pendant un temps assez long, de douleurs musculaires analogues à celles du rhumatisme; que depuis cette époque le travail lui était devenu pénible et qu'il était promptement fatigué. Son patron m'a aussi affirmé que depuis lors date la raucité prononcée de sa voix et enfin, circonstance étiologique évidente, qu'il aimait tout particulièrement le jambon d'Amérique, dont se composaient le plus ordinairement ses repas."

[2] "* * * Pero es el caso que todas las observaciones de triquinosis recogidas en nuestra península han recaído en cerdos nacidos y criados en España."

Madrid, Spain, 1881............................? cases, 6 deaths.

Chatin (1883b, p. 140) refers to cases in Madrid, which he intimates were due to American pork. He says:

> "The autopsy showed the presence of trichinæ in the cadavers of these persons, belonging to the poorer classes and ordinarily consuming large quantities of salted pork of American origin.[1]
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> "In 1881, an epidemic at Madrid, caused by American [meats]: 6 deaths. It is because of this that Spain took action before us, and that she prohibited the entrance into her territory of American meats."[2]

V. & A. (1881, p. 70) mention that trichinæ were found in some cadavers about 1881, which were destined for study in the medical faculty of Madrid.

Further references to alleged cases in Madrid are given in La Clínica de Málaga, 1883, pp. 127, 132:

> "Nor should what happened right here in Madrid be forgotten; another farce of trichinosis solemnly given the lie by our illustrious and beloved friend, Dr. Chicote, in official papers, to which the fabricators of the illness have had nothing to reply.[3]
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> "In writing the article published in La Correspondencia Médica the 8th of March, the author could not have seen the one which appeared in the Gaceta Médica Catalona seven days later. Belief in a thing can not be forced upon one. Science refuses to permit the writer to place credence in this thing, and as there is no human power which can persuade him to do so it therefore results that the writer of these notes, who is also the author of the article of the 8th of March, can not convince himself that the trichinous ham from the United States, which is coincident with the trichinous sausages from Gilena, could not be the occasion of more dangers in other villages and provinces of Spain than those caused in Malaga. He inclines to the belief that an error in judgment has been made, which is as possible in the said city as it was in Madrid not very long ago. And this being certain, he considers the judgment formed an erroneous one. He acts in conformity with his conscience in endeavoring to allay the alarm of the public, an alarm which he believes is not well founded."[4]

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[1] "L'autopsie a fait découvrir la présence de trichines dans les cadavres de ces personnes, appartenant aux classes les moins aisées de la population et faisant d'ordinaire une assez grande consommation de porc salé, de provenance américaine."

[2] Idem, p. 210: "En 1881, épidemie à Madrid, causée par des salaisons américaines: six morts. C'est à cause de cela que l'Espagne a pris les devants sur nous et qu'elle a interdit l'entrée des viandes américaines sur son territoire."—*Statement by Testelin, French Senate, June 20, 1882.*

[3] "Tampoco debe olvidarse lo ocurrido aquí en pleno Madrid, con otra farsa de trichinosis solemnemente desmentida por nuestro ilustrado y querido amigo, Dr. Chicote, en documentos oficiales, y á los cuales nada tuvieron que responder los inventores de la enfermedad."

[4] "Para escribir el articulillo que se publicó en La Correspondencia Médica el día 8 de marzo, no pudo ver el autor lo que publicó la Gaceta Médica Catalona siete días después. Y como la fé no se impone y cuando la ciencia se resiste á creer, no hay fuerza humana que la persuada, resulta que el autor de estas notas que lo fué también del artículo del 8 de marzo, no puede convencerse de que el jamón triquinoso de los Estados Unidos, coincidiendo con la longaniza también triquinosa de Gilena, no haya podido ocasionar más daños en otros pueblos y provincias de España que los causados en Málaga. Se inclina más á creer que ha habido un error de apreciación, tan posible en dicha ciudad como lo fué en Madrid no hace much tiempo. Y siendo cierto como lo es, que considera erróneo el juicio formado, obra en conformidad con su conciencia al procurar desvanecer la alarma del público que creyó y sigue considerando infundada."

These are the only references which I have thus far found to trichinosis in Madrid in 1881, and it is hardly possible to admit the alleged American origin upon bases of such indefinite data. From the number of alleged deaths, the question arises as to whether the Barcelona cases of 1880 and the Madrid cases of 1881 are not identical.

Chemnitz, Germany, 1881 .... 1 case, 0 death.

Reinhard, 1883, p. 48: "An isolated case of trichinosis occurred in Chemnitz, in a man who became infected from American bacon on the voyage from America to Germany, and was taken sick immediately after his arrival in his home in Chemnitz."[1]

The details in regard to this case are entirely wanting, so that it is impossible to pass judgment upon it. If the patient had been indulging his appetite for raw pork, it is not surprising that his passion secured for him an attack of trichinosis. The German authorities, however, fail to state whether the case was diagnosed clinically or microscopically; whether any trichinæ were found in the pork; whether the patient ate pork only on the steamer, or whether after arriving in Germany he ate German pork before reaching Chemnitz. Indeed, the only facts we find in regard to the case are that this German had eaten some bacon on the ship, and that he was taken sick immediately after his arrival in Chemnitz. The conclusion which some persons would naturally draw from these meager data is that this case was due to American pork. The cautious and thinking person, however, sees a number of other possibilities in this case. It must, of course, be admitted that there is a *possibility* that this case arose from American pork, but it must also be admitted that the burden of proof rests upon the Saxon health authorities, and I can not therefore admit that it has any definite bearing upon the subject of American pork in Germany, especially since it is not even alleged that the infection took place from American pork exported to Germany. Further, the claim that this particular case arose from the bacon eaten on the steamer is an admission on the part of the Saxon authorities that the case was not due to American pork intended for export to Germany.

Düsseldorf, R.-B. Düsseldorf, Germany, 1881 ... 16 cases, 3 deaths.

This outbreak is alleged by the German Government to have been due to American pork. Quite aside from the fact that it occurred years ago, before the microscopic inspection was instituted in America for pork intended for export to Germany—hence quite aside from the fact that the case occurred under conditions which do not exist to-day (inspection before shipment and reinspection in Germany), and therefore has no direct bearing upon the present discussion—it will be seen from the following extracts that the opinion of the German Government is not accepted by the foremost sanitarians of Europe. Virchow, Hertwig, Brouardel, Fränkel, and Wasserfuhr have all examined the case and have not accepted the evidence. Ostertag (1895) first followed Virchow, but later (1899) changed his opinion, without stating his reasons.

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[1] "In Chemnitz kam ein vereinzelter Fall von Trichinose bei einem Manne vor, der sich auf der Ueberfahrt von Amerika nach Deutschland auf dem Schiffe durch Genuss von amerikanischem Speck inficirt hatte und unmittelbar nach seinem Eintreffen in seinem Heimathorte Chemnitz erkrankte."

Virchow, 1884, p. 542: "In the early part of 1881, 16 cases of trichinosis, of which 3 were fatal, occurred in Düsseldorf, all resulting from the consumption of raw ham. The ham in question was designated by the merchant as a Holstein, under which name they are sold from Hamburg. A definite decision regarding this point could not be obtained. The fact that the ham was extremely small does not speak in favor of its being of American import, although suspicion existed that the dealer at that time imported American hams via Antwerp. Nevertheless, this was so uncertain that the Government also took into consideration the possibility that this ham might have come from an American hog imported alive, as such were imported in large numbers in 1880. Enough, it could not be ascertained where the ham came from, in spite of all inquiry." [1]

Weiss, 1890, p. 152: Does not discuss the case, and gives only the statistics.

Brouardel, 1883, pp. 1515, 1516: "After having studied the epidemic of Emersleben and vicinity, we have endeavored to inform ourselves regarding the reasons which decided the German Government to prohibit the importation of meat from America.

"We addressed Dr. Struck, president of the imperial health office, and desired to request of him the reports invoked by the organs of the German Government, upon the epidemics of Düsseldorf, Rostock, Bremen, etc. According to the documents, which we add further on, these epidemics should be attributed to American pork. Unfortunately, Mr. Struck was without doubt too occupied, he was not able to receive us.

"Virchow has been kind enough to furnish us information which we think is sufficient to fill the gap. He declared to us in the most formal manner that to his knowledge it was not scientifically demonstrated that the consumption of American pork had given rise to a single isolated case of trichinosis or to an epidemic. Virchow made this declaration to us several times, notably in presence of Hertwig, the veterinary director of the Berlin abattoir, chief of the microscopic inspection at this abattoir, and member of the imperial office. He himself confirmed Virchow's opinions.

"It is very important to note that, following German customs, American pork is eaten raw, and even under these conditions Virchow and Hertwig affirmed that, it had not been demonstrated that a single case of human trichinosis was attributable to this food." [P. 1516] "We regret that we do not possess the documents and the official reports of the imperial health office. But this affirmation by the author of the first complete study of trichinosis seems to us of great value. The analysis of the address of Köhler, Government commissioner, at the interpellation by Richter and Rickert, who demanded in the Reichstag session of January 9, 1883, the repeal of the prohibition, does not contain any scientific argument, but on the contrary [it contains] phrases which seem to testify that the reporters of the imperial office had to make serious reservations."

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[1] "Im Düsseldorf kamen Anfang 1881 16 Erkrankungen an Trichinose vor, sämmtlich in Folge des Genusses von rohem Schinken, von denen 3 tödtlich endeten. Der fragliche Schinken war von dem Händler als ein holsteinischer, wie sie von Hamburg aus in den Kauf gebracht würden, bezeichnet worden. Eine bestimmte Entscheidung über diesen Punkt hat sich nicht gewinnen lassen. Der Umstand, dass der fragliche Schinken auffallend klein und unansehnlich gewesen ist, spricht nicht für amerikanischen Import, obwohl der Verdacht bestand, dass der Verkäufer damals amerikanischen Schinken über Antwerpen bezogen habe. Indess war dies so wenig sicher, dass die Regierung auch die Möglichkeit in Erwägung zog, dass der Schinken von einem lebenden amerikanischen Schwein herstammen könne, wie deren seit 1880 in grösserer Zahl eingeführt sein. Genug, woher der Schinken eigentlich gekommen ist, hat sich trotz aller Nachforschung nicht ermitteln lassen."

"Here is a translation of the passages which contain the statements relative to hygiene. The end of the response seems to indicate that the question under debate had another interest, and that the struggle had occupied the scientific field only a moment, to retake its place among the questions of protection or free trade.

"Analysis of the speech by the Government councillor:

"'It has been found that the epidemic at Düsseldorf (1881) was, according to a communication of the Royal Prussian Government, of American origin. (15 cases, 3 deaths.)

"'Also at Bremen, at Rostock, one may accuse American meat.

"'But the proof of this accusation is exceedingly difficult to furnish because[1]'" [diagnosis difficult; American meats mixed and sold as German sausage, etc.]

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[1] "Après avoir étudié l'épidémie de Emersleben et de ses environs, nous avons tenu à nous informer des raisons hygiéniques qui avaient décidé le gouvernement allemand à prohiber l'introduction des viandes d'Amérique.

"Nous nous étions adressés à M. le docteur Struck, président de l'office impérial de santé, et nous voulions lui demander communication des rapports invoqués par les organes du gouvernement allemand sur les épidémies de Dusseldorf, Rostok, Brême, etc. D'après les documents que nous joignons plus loin, ces épidémies auraient été attribuées à la consommation de viandes porcines américaines. Malheureusement, M. Struck était sans doute trop occupé, il n'a pas pu nous recevoir.

"M. Virchow a bien voulu nous fournir quelques renseignements qui, nous le pensons, suffisent à combler cette lacune. Il nous a déclaré de la façon la plus formelle que, à sa connaissance, il n'était pas scientifiquement démontré que la consommation de la viande porcine américaine eût donné naissance à un seul cas de trichinose humaine isolé, ou à plusieurs simultanés développés en forme d'épidémie.

"M. Virchow nous a plusieurs fois fait cette déclaration, notamment en présence de M. Hertwig, vétérinaire directeur de l'abattoir de Berlin, chef de service de micrographie pour la recherche de la trichine à cet abattoir, membre de l'office impérial: lui-même a confirmé les opinions de M. Virchow.

"Ils est très important de noter que, suivant les habitudes allemandes, le porc américain est consommé cru et que, même dans ces conditions, MM. Virchow et Hertwig affirment qu'il n'est pas démontré qu'un seul cas de trichinose humaine soit imputable à cette ingestion.

"Nous regrettons de ne pas posséder les documents et rapports officiels de l'office impérial de santé. Mais cette affirmation de l'auteur de la première étude complète sur la trichinose nous semble d'une grande valeur. L'analyse du discours prononcé par M. le conseiller aulique Köhler, commissaire du gouvernement confédéré, à une interpellation de MM. Richter et Rickert qui, dans la séance du 9 janvier 1883 du Reichstadt, demandaient la levée de la prohibition, ne contient aucun argument scientifique, mais au contraire des phrases qui semblent témoigner que les rapporteurs de l'office impérial avaient dû faire de sérieuses réserves.

"Voici la traduction des passages qui renferment des affirmations relatives à l'hygiène. La fin de la réponse semble du reste indiquer que la question débattue avait un intérêt autre et que la lutte n'avait occupé qu'un moment le terrain scientifique pour reprendre sa place naturelle parmi les questions de protection ou de libre échange.

"Analyse du discours de M. le conseiller aulique du gouvernement. "On a trouvé

Wasserfuhr, 1891, pp. 248, 249: "In order, therefore, that an article of food may be designated 'injurious to health,' and in order to justify a sanitary police interference with its traffic, it is necessary that the same has, from experience, if not usually, still at least repeatedly, caused cases of sickness and death.

"Has this proof been brought forward with reference to the American pork (hams, bacon, etc.) imported into Germany?

"Not in the slightest! We have, indeed, heard many complaints from the defenders of the prohibition regarding the extensive distribution of trichinosis and cholera among the American hogs, regarding the poor organization of the veterinary police and of the meat inspection in the United States, as well as regarding the faulty preparation of the pork exported from there. But complaints of this nature, such as are pushed to the fore by that side, are—except that they are more or less contradicted by other parties—secondary, lead the public astray, and are of no importance in connection with the subject in hand, namely, the question regarding the injurious influence of those wares. Dr. Barth has already very properly brought forward this point in the Reichstag session of January 9, 1883. He said (according to the stenographic report): 'What, in my opinion, was the task of the federated Government in this matter? The cardinal question was a list, or at least an approximately exact report, of the cases and deaths which were traced to the consumption of American

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que l'épidémie de Dusseldorf (1881) était d'près une communication du gouvernement royal prussien, d'origine américaine (voy. Archives) (15 cas et 3 morts).

"De même à Brême, à Rostock, on peut accuser la viande américaine.

"Mais la preuve de cette accusation est excessivement difficile à fournir parce que:

"A. Le diagnostic de la trichinose est difficile, celle-ci étant récemment étudiée et ressemblant à d'autres maladies.

"B. La viande américaine, fumée et très peu salée, est mélangée, accommmodée, vendue sous le nom de saucisses et saucissons allemands (p. 422).

"M. Köhler continue et insiste sur l'impossibilité d'un examen sérieux du porc américain à la frontière: dissémination des morceaux, etc.

"Et cependant cette viande serait d'autant plus dangereuse, qu'elle porterait désormais l'estampille officielle.

"Nous pourrions recommander au public de ne pas manger de viande de porc américain sans la soumettre à la cuisson, qui est certainement le moyen le plus sûr pour tuer la trichine.—Mais si les Américains, les Anglais, les Français ne mangent qu'avec dégoût du porc incomplètement cuit, nos Allemands aiment beaucoup la viande crue ou peu cuite du porc.

"Cependant nous ne pouvons pas, par des lois, changer le goût du pays. Ces lois seraient inutiles et porteraient atteinte à la liberté individuelle.—Ce serait un contresens.

"Une loi de prohibition est donc légitime et nécessaire. D'ailleurs d'autres États, France, Autriche-Hongrie, Italie, etc., ont voté ces lois.

"Elles devront être temporaires et subordonnées à l'état des marchandises américaines. Que le commerce américain prenne ses précautions, examine ses porcs, surveille leur nourriture, etc., ces lois deviendront alors inutiles.

"Les inconvénients des lois de prohibition sont réfutées par la statistique suivante: En 1880, l'importation du porc frais a été de 23,962,200 kilogrammes, l'exportation de 5,645,300 kilogrammes, d'où excédent énorme de 18,316,900 kilogrammes d'importation. Supposons que trois quarts d'excédent de cette importation soient de viande américaine, on aura 13,000,000 de kilogrammes environ.

"En 1881, l'importation américaine se réduit à 10,000,000 de kilogrammes environ.

"En 1882 (jusqu'en octobre), importation 6,000,000 de kilogrammes environ. Exportation, 5,000,000 de kilogrammes. Différence en faveur de l'importation: 1,000,000 de kilogrammes environ."

pork. (Quite right! left.) All else is secondary in comparison—is, in fact, a direct proof on the other side. For the more trichinæ are eaten in American meat, and the fewer cases of sickness traced in spite of this (calls of Quite right!), so much the more is proof presented that disease is not caused by eating trichinous American meat.' In opposition to this, no other statements founded on facts are found in the Reichstag proceedings of 1883 regarding the injurious action of American meats, except those of the Bundesrath commissioner, who (according to the stenographic reports) expresses himself as follows: 'According to an official communication of the Royal Prussian Government there occurred, for instance in 1881, in Düsseldorf, 15 cases of disease—of these, 3 with fatal termination—which were proved to be due to eating an American ham. Similar cases [literally, establishments] have taken place in former years—for example, I recall in Bremen and Rostock—so that the proofs which are missed by Herr Richter, that in reality the American trichinæ are dangerous, may therefore be [looked upon as] presented.'

"Such indefinite statements can not convince a doubter. Further, it is known that they have later, so far as American pork is concerned, and as a result of exact investigations by expert physicians, turned out to be in part erroneous, in part unproved. It is probably only because of not being acquainted with these medical investigations, in which Virchow and others have taken part, that it is to be explained that a State minister, who according to his own statement was able to inform himself only from the records, declared again, with great certainty, in the Reichstag session of January 22 of this year, that it was a fact, and indisputably proved, that trichinosis had broken out in different places in Germany from eating American pork."[1]

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[1] "Um also ein Nahrungsmittel als Gesundheitsschädlich bezeichnen zu dürfen und um ein sanitäts-polizeiliches Einschreiten gegen den Verkehr mit demselben zu begründen, ist nothwendig, dass dasselbe erfahrungsgemäss, wenn nicht gewöhnlich, so doch mindestens wiederholt Erkrankungen und Tod thatsächlich veranlasst hat.

"Ist dieser Nachweis von dem nach Deutschland eingeführten amerikanischen Schweinefleisch (Schinken, Speckseiten u. dgl.) erbracht worden?

"Nicht im mindesten! Man hat zwar von den Vertheidigern des Einfuhrverbots viele Klagen gehört über die grosse Verbreitung von Trichinose und Cholera unter den amerikanischen Schweinen, über die schlechte Organisation der Veterinärpolizei und der Fleischbeschau in den Vereinigten Staaten, sowie über die mangelhafte Zubereitung der von dort ausgeführten Schweinefleischwaaren. Aber Klagen dieser Art, wie sie von jener Seite in den Vordergrund geschoben werden, sind—davon abgesehen, dass ihnen von anderen Seiten mehr oder weniger widersprochen wird—nebensächlich, führen nur das Publikum irre und sind für die Entscheidung der Frage, auf welche es ankommt, nämlich der Frage nach der gesundheitsschädlichen Wirkung jener Waaren gleichgültig. Sehr richtig hat dies bereits der Abgeordnete Dr. Barth in der Reichstagssitzung vom 9. Januar 1883 hervorgehoben. Er sagte (nach den stenographischen Berichten): "Was meines Erachtens die Aufgabe der hohen Bundesregierungen gewesen wäre bei dieser Frage, die Cardinalfrage, das wäre ein Verzeichniss oder wenigstens eine annähernd genaue Angabe der constatirten Erkrankungen, beziehungsweise der Todesfälle auf Grund des Genusses von amerikanischem Schweinefleisch. (Sehr richtig! links.) Alles andere ist demgegenüber Nebensache, ist sogar zum Theil ein directer Gegenbeweis. Denn je mehr Trichinen in amerikanischem Fleische genossen werden, und je weniger Krankheitsfälle trotzdem constatirt werden (Rufe: Sehr richtig!), um so mehr ist der Beweis geliefert, dass durch den Genuss von trichinenhaltigem amerikanischen Fleische Krankheiten nicht hervorgerufen werden." Demgegenüber finden sich in den i. J. 1883 stattgehabten Reichstags-Verhandlungen über gesundheitsschädliche Wirkung amerikanischer Fleischwaaren keine anderen thatsächlichen Angaben als diejenigen eines Commissars des Bundesraths, welcher sich (nach den stenographischen

Fränkel, 1891, pp. 1388, 1389: "It is not different with the second case, which was reported from Düsseldorf. There are said to have been taken sick there in 1881, as a result of eating raw ham, 16, according to a letter for which I am indebted to the kindness of the Kreisphysikus, Geheimrath Zimmermann in Düsseldorf—13 persons, 3 of whom died. But the origin of the suspected meat, which came from Hamburg, could not be determined with certainty. Perhaps results would have been obtained if a more exact examination had been made, results similar to those of the case mentioned by Wasserfuhr, where a small trichinosis epidemic in Crépy-en-Valois in 1878 gave to the French high protectionists the handle for a prohibition of the importation of American meat, [and it was shown] that the guilty hog was not, as stated, an American, but a Norman. Those, therefore, are the two feet upon which later the Colossus of the prohibition was raised. It is not entirely easy not to write a satire."[1]

Mosler & Peiper, 1894, pp. 279, 280: "The possibility that trichinosis can be caused by the consumption of American meat is accordingly not excluded. As a matter of fact, cases of trichinosis which are traced to American hams or bacon have occurred only sporadically. Focke records that in Bremen 12 persons were taken sick from eating an American ham, and later 8 other persons. In 1881 16 persons in Düsseldorf were taken sick with trichinosis after the consumption of raw ham; 3 died. The ham in question came from Hamburg; its origin could not be traced.

Berichten) folgendermaassen äusserte: "Nach einer amtlichen Mittheilung der kgl. preussischen Regierung sind z. B. i. J. 1881 in Düsseldorf 15 Erkrankungen, davon 3 mit tödtlichem Verlauf vorgekommen, die nachgewiesenermaassen auf den Genuss amerikanischer Schinken zurückzuführen waren. Aehnliche Feststellungen haben in früheren Jahren, wie ich mich z. B. erinnere, in Bremen und Rostock, stattgefunden, so dass also die von dem Herrn Abgeordneten Richter vermissten Beweise, dass wirklich die amerikanischen Trichinen gefährlich seien, erbracht sein dürften." So unbestimmte Angaben können keinen Zweifler überzeugen, haben sich übrigens später, soweit amerikanisches Schweinefleisch dabei in Betracht kommt, in Folge der von sachverständigen Aerzten vorgenommenen genauen Nachforschungen bekanntlich theils als irrthümlich, theils als unerwiesen herausgestellt. Es ist wohl nur aus der Unbekanntschaft mit diesen ärztlichen Nachforschungen, bei welchen u. A. auch Virchow sich betheiligt hat, zu erklären, wenn einer der Herren Staatssecretäre, welcher seiner eigenen Angabe nach nur aus den Akten sich hatte informiren können, noch in der Reichstags-Sitzung vom 22. Januar d. J. mit grosser Sicherheit die irrige Behauptung aufgestellt hat, es sei unläugbar und thatsächlich festgestellt, dass die Trichinose an verschiedenen Orten Deutschlands durch den Genuss amerikanischen Schweinefleisches ausgebrochen sei."—*Wasserfuhr, 1891a, pp. 248, 249.*

[1] "Nicht anders steht es mit dem zweiten [p. 1389] Fall, der aus Düsseldorf berichtet wurde. Dort sollten 1881 infolge des Genusses von rohem Schinken 16—nach einer brieflichen Mittheilung, die ich der Liebenswürdigkeit des Herrn Kreisphysikus, Geheimrath Zimmermann in Düsseldorf, verdanke—13 Personen erkrankt, 3 gestorben sein. Aber die Herkunft der verdächtigen Fleischwaare, die aus Hamburg bezogen war, lässt sich mit Sicherheit nicht mehr ermitteln, und vielleicht wäre man bei genauerer Prüfung des Thatbestandes auch hier zu einem ähnlichen Ergebniss gelangt, wie in dem von Wasserfuhr (Hyg. Rundschau, p. 250) angeführten Falle, 'wo eine im Jahre 1878 in Crépy-en-Valois ausgebrochene kleine Trichinenepidemie den französischen Schutzzöllnern die Handhabe zum Verbot der Einfuhr amerikanischen Schweinefleisches gab, es sich aber schliesslich herausstellte, dass das schuldige Schwein nicht, wie behauptet worden, ein amerikanisches, sondern ein normannisches gewesen war.' Das also sind die beiden Füsse, auf denen sich später der Koloss des Einfuhrverbotes erhob—es ist nicht ganz leicht, keine Satire zu schreiben!"

According to Virchow, the published cases are not given in so complete a scientific form that they can be the subject of a serious criticism."[1]

Ostertag, 1895, p. 418: "After it has formerly been pointed out, especially by Virchow, that with exception of a (by no means free from criticism) observation in Bremen, no certain case of trichinosis could be traced to eating American salted pork."[2]

Ostertag, 1899, p. 506: "Further, [an outbreak of] trichinosis occurred in Düsseldorf after the consumption of American meat."[3]

Liège (province), Belgium, 1882 .... 11 cases, 0 death.

According to Blanchard (1887, p. 141), this outbreak was due to American pork. He says:

> "The disease is, so to speak, unknown in Holland and Belgium. In this last-named country we shall mention an epidemic, due to the use of American salted meats, which occurred in 1882 in the province of Liège and attacked 11 persons."[4]

The only other reference I have found to this outbreak is one by Chatin (1883, p. 210) to a statement by M. Testelin in the French Senate, who is quoted as having said: "Finally, a seventh epidemic occurred in the province of Liège, in Belgium; eleven persons were attacked."[5] Until more definite details are found, this outbreak hardly deserves serious attention.

Marshall, 1882 .... (?) cases, 3 deaths.

According to Chatin (1883, p. 210), M. Testelin also referred to three deaths in Marshall which were alleged to have been caused by American pork. I have been unable to trace this outbreak.

Cologne, R.-B. Cologne, 1883 .... 1 case, 0 death.

Bouley (1884, p. 395) cites a case in Cologne. I am unable to find any other mention of this case in the official or other reports unless it is the one quoted by Schwartz in his report for 1882[1] as a "proof" that trichinæ in imported American pork are alive. This so-called "proof" is as follows: A *cat* stole a piece of trichinous American pork from an inspector. Later the cat was killed and found to contain trichinæ. Forgetting that cats eat mice and rats, and that these animals are frequently infected with trichinæ, Schwartz concludes that the case is here proved against American pork. Quite aside from the possibility or even probability that the cat became infected from mice or rats, it may be suggested that as this cat belonged to a trichina inspector it is not at all impossible that it might have eaten German pork which the inspector in question had "inspected and passed as free from trichinæ."

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[1] "Die Möglichkeit, dass durch den Genuss amerikanischen Schweinefleisches Trichinosis hervorgerufen werden kann, ist demnach nicht auszuschliessen. Thatsächlich werden allerdings Erkrankungen an Trichinosis, welche auf Genuss von amerikanischem Schinken oder Speck zurückgeführt sind, nur ganz sporadisch vorgekommen sein. Focke berichtet, dass in Bremen durch den Genuss eines amerikanischen Schinkens 12 Personen, später noch weitere 8 erkrankt sein. Im Jahre 1881 erkrankten nach dem Genusse von rohem Schinken in Düsseldorf 16 Personen an Trichinosis, 3 starben. Der fragliche Schinken war aus Hamburg bezogen, seine Herkunft liess sich nicht ermitteln. Nach Virchow sind die angeführten Fälle nicht in so ausfürlicher wissenschaftlicher Form veröffentlcht, dass sie Gegenstand ernster Kritik sein können."

[2] "Nach dem schon früher, namentlich durch Virchow, darauf hingewiesen worden war, dass mit Ausnahme einer durchaus nicht einwandsfreien Beobachtung aus Bremen noch kein sicherer Fall von Trichinosis auf den Genuss gesalzenen amerikanischen Schweinefleisches habe zurückgeführt werden können." * * *

[3] "Ausserdem ist in Dusseldorf eine Trichinosis nach Genuss amerikanischen Schweinefleisches ausgebrochen."

[4] "La maladie est, pour ainsi dire, inconnue en Holland et en Belgique. Dans ce dernier pays, nous signalerons une epidémie, due à l'usage de salaisons américaines, qui a éclaté en 1882 dans la province de Liège et a frappé 11 personnes."

[5] "Enfin, une septième épidémie a éclaté dans la province de Liège, en Bèlgique; elle a frappé onze personnes."

Possibly Bouley referred to the alleged outbreak of 7 cases in Cologne discussed below. (See also p. 178.)

Malaga, Spain, February–March, 1883 . . . . 1 case, 1 death.

Early in 1883, an epidemic of about 26 cases, 3 deaths, which occurred in Malaga, appears to have created a commotion in Spain which almost bordered upon a panic similar to the trichinosis scare which occurred in Germany in 1860–1865. The various original accounts given by Spanish writers are somewhat confused, so that it is difficult to give the exact extent of the outbreak. As nearly as can be made out, about 26 cases occurred, 4 of which were fatal. It appears, further, that all of the patients ate raw pork sausage coming from Gilena, and that one patient had also eaten of an American ham. It appears, further, that trichinæ were found both in the remnants of the sausages and of the ham. Some authors have, on basis of these facts, assumed that one patient became infected from the ham (although it is definitely stated that she had eaten "raw sausage" at various times), while the others became infected from the sausages. The reason for this assumption is not apparent.

The first reference to the outbreak appears to be the article by Antonio Linares Henríquez (1883, pp. 141–144), who refers to 6 cases, with 2 deaths. In connection with 4 of the patients he states that "Almost all had eaten pork sausage and had not cooked it in metal vessels."[2] In referring to a fifth case (fatal), he says: " * * * for I knew that the sick woman had eaten ham, not of the country, American."[1] Chatin (1883, pp. 498–490) refers, in a meeting of the French Academy of Medicine, to Henríquez's paper, and states that, for one case, the source was traced to an American ham, a conclusion not entirely justified by Henríquez's words.[1] Henríquez's paper is translated in the Gaz. Hebd. de Méd. et de Chir.[2] It may be mentioned that in the case alleged to have been due to American ham, no postmortem was held. Trichinæ were, however, found both in the sausages and in the ham. An editorial in the N. Y. Med. Journ., XXXVII, p. 577, based upon the French article just referred to, states that "In one instance the patient was known to have eaten of American ham, and the ham was found trichinous." In July, Dr. Francisco Linarez Enriquéz (1883, pp. 405–408) mentions 8 cases, 1 death, which occurred in February and March. It is not clear that any of these are identical with the 6 cases, 2 deaths, referred to above. Sausage purchased of a known dealer is given as the alleged source of infection, and American meat is not mentioned.

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[1] "Zum Beweise, dass auch die im amerikanischen Fleisch gefundenen Trichinen nicht immer todt und unschädlich geworden sind, mag die Mittheilung des Kreis-Physikus Dr. Winckel in Mülheim dienen, nach welcher einem dortigen Fleischschauer während der Untersuchung trichinenhaltigen amerikanischen Fleisches durch seine Katze ein Fleischstückchen geraubt und gefressen wurde. Die Katze wurde nach mehreren Wochen getödtet und voll von Trichinen gefunden."—*Schwartz, 1883, p. 32.*

[2] "Casi todos habían comido la carne de cerdo en embutidos (longaniza) y no habían guisado en vasijas metálicas."

Francisco de Martos Peréz (1883, pp. 51–55) mentions 2 patients who had eaten raw sausages.

An article entitled "La trichinosis en Málaga," which appeared in La Correspondencia Médica, No. 8, March, 1883, and was copied in La Clínica de Málaga, 1883, pp. 127–129, discussed the outbreak in rather a sarcastic manner. In speaking of the press reports it says that three versions were current, namely:

(1) "As for having introduced trichinous ham coming from America, various persons who had eaten it had been attacked by the illness, of whom 7 had already died;

(2) "That trichina had also been found in some sausages coming from Gilena, which so alarmed the people that no one dared to eat pork;

(3) "And last, that the illness is already conquered in Malaga; that the sole origin of this was the sausages from Gilena, and not the North American ham; that although the sufferers reached the number of 20, only 3 had died, and the others, it is supposed, had recovered. (What a tale!) Finally, that if, among the people of Alameda, in the same province, some alarm was produced by the effects brought about by the pork eaten by some persons, a medical examination proved that although the woman was ill, the illness was not trichinosis."[3]

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[1] "* * * pues supe que la enferma había comido jamón, no del país, americano."

[2] The two passages (see footnotes 1 and 2) in question are rendered as follows: "Presque toutes les malades se rappelaient avoir mangé de la viande de porc hachée (saucisses); on n'avait pas employé de vases métalliques pour la cuisson."—"J'eus alors l'occasion de confirmer mon diagnostic, *car j'appris que la malade avait mangé d'un jambon, non pas du pays, mais bien américain.*"

[3] (1) "Que por haberse introducido jamón trichinoso procedente de América; habían sido atacadas de la enfermedad varias personas que lo habían comido, de las cuales habían fallecido ya siete.

(2) "Que también se habían encontrado trichinas en unas longanizas procedentes de Gilena, por lo que, alarmada la población nadie se atrevía á comer carne de cerdo.

(3) "y último. Que ya está dominada la enfermedad en Málaga. Que *el único orígen* de ella fué la longaniza de Gilena y no ya el jamón norte-americano. Que

The author intimates that the agitation against pork is supported by commercial rather than hygienic interests. This article called forth two replies by Antonio de Linares Enriquéz, in La Clínica de Málaga, 1883, pp. 129–139 (see also p. 175 of present report). Some further details regarding the cases are given; and it appears that in connection with the alleged American origin of the ham he made no extensive investigation, but simply accepted a statement made to him, for he says: "Having examined a very small piece of ham, which was said to me to be American. * * *"[1]

Fidel Fernández Osuna (1883, p. 237), in referring to trichinosis in Spain, says:

> "Since 1875, the date on which the mournfully celebrated events at Villa del Arzobispo gave the note of alarm, trichina has been observed in Spain in different places and at different dates; in Barcelona, Seville, Lora, Cordoba, and at present in Malaga and Valencia. The hogs, the flesh of which has been the cause of the illness, are native, and it is to be feared that trichinosis exists in many other places, for, in accordance with the extent of its study, new cases will be discovered."[2]

Aurelio Abela (1883, pp. 41–51) says there were about 25 cases, with 3 deaths. Regarding the source of infection, he remarks:

> "Only in the sausage coming from Gilena was found trichina, and this in as many preparations as were made. All the persons attacked, including the three whose lives were sacrificed, ate of the same sausage (p. 46).[3] Only in the sausage from Gilena, of which the persons who were attacked had eaten, was it possible to discover trichina (p. 51)."[4]

Joaquín Pérez Risueño (1884, pp. 214–224) discusses in detail the outbreaks which have occurred in Spain, and says in regard to the Malaga epidemic that there were in all[5] more than 26 cases, 3 of which were fatal.

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aunque los atacados han sido hasta el número de 20, sólo han fallecido 3 y los demás se les supone curados (¡Cuanta patraña!). En fin, que si en el pueblo de Alameda, de la misma provincia, se produjo alguna alarma, por los efectos que produjo la carne de un cerdo en algunas personas que lo comieron, del reconocimiento facultativo resultó que el dicho estaba enfermo, no trichinado."

[1] "Examinados en ésta su casa un trozo de longaniza de la que habían comido los enfermos de la calle de Mármoles y una pequeñisima cantidad de jamón, que se me dijo ser americano, casa de la enferma de la calle de los Friales. * * *"

[2] "A partir de 1875, fecha en la cual los hechos tristemente célebres de Villar del Arzobispo dieron la voz de alarma, se ha observado la triquina en España en diversos puntos y fechas. En Barcelona, Sevilla, Lora, Córdoba, y actualmente en Málaga y Valencia. Los cerdos cuyas carnes han producido la enfermedad son del país, y es de temer que exista la triquinósis en muchos otros puntos, pués á medida que se vulgariza su estudio se descubren nuevos casos."

[3] "En la longaniza procedente de Gilena, es donde únicamente se ha encontrado la triquina, y esto, tantas veces cuantas de ella se han hecho preparaciones microscópicas. De este embutido comieron todos los atacados incluso los tres á quienes les ha costado la vida y estamos persuadidos (p. 46).

[4] "Solo en la longaniza de Gilena, de la cual han comido los que fueron atacados, ha sido posible descubrir la triquina."

[5] "Nuevos casos de triquinosis fueron observados al día siguiente por el distinguido médico, á quien de derecho pertenece el honor de su descubrimiento en Málaga.

In referring to one case observed by Dr. Linares Henriquéz, he says:

> "Going to the home of the sick woman, Friars street, No. 30, he observed the same combination of symptoms in a woman 30 years old, of a good constitution. Her illness had begun some fifteen days before. The sick woman had eaten ham from America, and raw sausages at different times." [1]

It would appear, therefore, that the statement that this case was due to American meat is nothing more than an assumption.

Valencia, Spain, March–April, 1883 .... 6 cases, 1 death.

Blanchard (1887, p. 142) in recording the Barcelona cases, adds:

> "More recently, Ferrer y Genovés has published a large number of observations made at Valencia on persons using American pork." [2]

It will be noticed that Blanchard does not directly state that these cases were due to American meat, and upon referring to Ferrer y Genovés (1883, 1884), I have failed to find that he claims that they were of American origin. He says (1883, p. 512):

> "New and careful questioning gave as a result (according to their recollection of the pork) that all this family had eaten some days before their illness, some sausages bought in a pork shop some distance from Valencia." [3]

In speaking of patients in Torreón, No. 2, it appeared that they also had eaten meat from the same hog.[4] The same outbreak is referred to by both Gómez y Rieg (1883, pp. 98, 99) and by Risueño (1884, p. 224), neither of whom appears to attribute the outbreak to American meat. The former states that the "fact existed that they had used for their supper certain sausages dried, some raw, some cooked, which had been bought outside of the city in that part called Orriols. * * * All the the sausages have same origin," while the latter says that the "only exclusive cause was the eating of pork and sausages, in which afterwards trichinæ were found." There occurred in Algimia 3 cases,

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Un pariente de la familia de calle de Mármoles, había adquirido embutidos de igual procedencia, y al ir á verle á su casa, Corralón de Santa Bárbara, número 5, encontró 7 enfermos más atacados de este parasitismo. Y no fueron los que hasta aquí hemos citado los únicos casos de la infección: la contrajo también una señorita hermana de la enferma de la calle de los Frailes y además su criada; presenteronse luego varios casos, unos veintiseis entre todos, sin contar algunos otros que por su poca entidad habían pasado desapercibidos [p. 221]."

[1] "Trasladado á la casa de la enferma, calle de los Frailes, número 30, observó el mismo cuadro de síntomas en una señora de unos 30 años de edad, de buena constitución; el padecimiento había empezado unos quince días antes, y la enferma había comido jamón procedente de América, y longanizas crudas varias veces" [pp. 220, 221].

[2] "Plus récemment, Ferrer y Genovés a publié un grand nombre d'observations, faites à Valence chez des individus faisant usage de porc américain."

[3] "Nuevo y minucioso interrogatorio da por resultado (al recordar las carnes de cerdo) que toda esta familia había comido, días antes de enfermar, unas longanizas compradas en una tocinería algo distante de Valencia."

[4] "Que también habían comido carnes al parecer del mismo cerdo.—Ferrer y Genovés" [1883, p. 513].

1 death, among persons who had eaten of the same sausages as the people in Valencia.

From the above evidence, it is not clear that these cases were due to American meat.

Cologne, R.-B. Cologne (year?) .... 7 cases, ? death.

Wasserfuhr, 1891a, pp. 249, 250: "Only in the Regierungsbezirk Cologne, according to a statement made by the same State minister in the Reichstag session of January 23, 7 cases of trichinosis are said to have recently occurred which could be traced to American pork. It is not possible at present to test the correctness of this statement; not even the place or the date of the occurrence was named. In spite of this, the speaker believed he could utilize this as important proof of the dangerous character of American pork. On the contrary, one is justified in doubting the matter, so far as the relations of American meat are concerned, until the official report appears, which the Royal Government in Cologne has ordered, and which is not yet completed and not yet known."

From the above it results that a sufficient proof that the consumption in Germany of American pork has as a rule or in a number of cases caused sickness or death has not been brought forward. A prohibition of its importation on this account because of sanitary grounds can not be justified.[1]

No further reference to this outbreak has been found. An important fact to be noticed is that no mention of it appears to be made in any of the official health reports of the Reg.-Bez. Cologne. Yet if the investigation ordered by the Government at Cologne had revealed the fact that these alleged cases ever actually existed or that they were traced to American meat, it is not unreasonable to assume that they would at least be recorded in one of the Cologne health reports.

"**Nixe**" outbreak, 1891........................ 17 cases, 0 death.

In connection with the Bremen statistics it may be well to refer to an outbreak on the Bremen bark *Nixe*, 17 cases, 0 death, reported for 1891, and alleged by some parties to have been due to American salt pork. It will suffice if the following article by Wasserfuhr (1891b, p. 1043) is quoted:

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[1] "Nur im Regierungsbezirk Köln sollen nach einer von demselben Herrn Staatssecretär in der Reichstagssitzung vom 23. Januar gemachten Mittheilung in jüngster Zeit 7 Fälle von Trichinose vorgekommen sein, welche auf den Genuss amerikanischen Schweinefleisches zurückgeführt werden konnten. Eine Prüfung der Richtigkeit dieser Angabe ist zur Zeit nicht möglich; es wurden nicht einmal Ort und Zeit jenes Vorkommnisses genannt. Trotzdem glaubte der Redner dasselbe als wichtigen Beweis für die Schädlichkeit des amerikanischen Schweinefleisches verwerthen zu können. Man ist im Gegentheil berechtigt, den Thatbestand, soweit er sich auf amerikanisches Fleisch bezieht, so lange zu bezweifeln, bis die amtlichen Erhebungen vorliegen, welche die Königliche Regierung in Köln angeordnet hat, und welche zur Zeit noch nicht abgeschlossen und noch nicht bekannt geworden sind.

"Aus dem Vorstehenden ergiebt sich, dass ein genügender Nachweis, der Genuss amerikanischen Schweinefleisches in Deutschland habe in der Regel oder doch in zahlreichen Fällen Erkrankung oder gar Tod bewirkt, nicht geführt ist, ein Verbot der Einfuhr desselben daher durch sanitäre Gründe nicht gerechtfertigt werden kann."—*Wassefuhr, 1891a, pp. 249, 250.*

"The outbreak of trichinosis on board the bark *Nixe*, of Bremen, in the harbor of Iquique, was described in certain political newspapers as if the people in question were taken sick as a result of eating North American cured pork, the importation of which into the German Empire is still forbidden on hygienically unsupportable grounds. The Weserzeitung has already rightly questioned whether it was not fresh meat from a hog slaughtered in Iquique, rather than cured pork from North America. Thus the erroneous conclusions drawn by persons not expert in this line, or by prejudiced parties, to the good of the present prohibition on North American cured pork, fall.

"As an important hygienic question in regard to the feeding of the masses is here concerned, an authentic account of the outbreak, based upon the report of the captain of the *Nixe* to owners of the ship, does not seem out of place. Dr. Pauli, member of the board of health of Bremen, consulted that report, with the permission of the owners, and permits me to publish the following facts from it. On the 2d of May the ship's cook purchased a piece of *fresh* (*Chile*) pork in the market of Iquique; the boat was lying off the city. Before this pork was prepared for dinner on the 4th the cook gave the crew for breakfast some of this fresh scraped meat, with salt and pepper. The captain himself, as well as four sailors who were ashore on leave in the morning, did not eat of this breakfast; all the rest of the crew partook of it. First, the head wheelman became very sick. The physicians in the beginning could not make any definite diagnosis, but the rapid succession of a number of similar cases gave a clue, and in an excised piece of muscle fresh trichinæ were found. At the posting of the last letter from the captain from Iquique none of the patients had died, but the condition of the head wheelman was such that there was some doubt in regard to his recovery, and 13 members of the crew had to be left behind as very sick.

"Accordingly the unfortunate event has absolutely not the slightest thing to do with North American cured pork. On the contrary, this is only another proof that raw scraped pork should never be eaten, a depraved habit which is unknown to other nations, but which it does not seem possible to eradicate from Germany, in spite of all unfortunate experiences." [1]

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[1] "Der Ausbruch der Trichinose an Bord der Bremen Bark "Nixe" in Hafen von Iquique ist von einzelnen politischen Zeitungen so dargestellt worden, als ob die betreffenden Personen infolge Genusses gepökelten nordamerikanischen Schweinefleisches erkrankt wären, dessen Einfuhr in das Deutsche Reich aus hygienisch unhaltbaren Gründen noch immer verboten ist. Die "Weserzeitung" hat bereits den Thatbestand dahin richtig gestellt, dass es sich nicht um Schweinefleisch jener Art, sondern um *frisches* Fleisch von einem in Iquique geschlachteten Schweine gehandelt hat. Damit sind die von nicht sachverständigen oder voreingenommenen Berichterstattern zu Gunsten des bestehenden Einfuhrverbots für nordamerikanisches gepökeltes Schweinefleisch gezogenen schiefen Folgerungen hinfällig geworden.

"Da es sich jedoch um eine für die Volksernährung in Deutschland wichtige *hygienische Tagesfrage* handelt, erscheint eine authentische Darstellung jenes Vorfalles nicht überflüssig, welche sich auf Berichte des Capitäns der "Nixe" an seine Rheder gründet. Mein geehrter College, Herr Dr. Pauli, Mitglied des Gesundheitsraths von Bremen, hat jene Berichte mit Erlaubniss der Reeder eingesehen, und mir gestattet, aus denselben folgendes mitzutheilen: Am 2. Mai kaufte der Koch des vor Iquique liegenden Schiffs auf dem Markte daselbst ein Stück frisches Schweinefleisch (also chilenisches)! Bevor dasselbe am 4. zum Mittagsmahle bereitet wurde, gab er der

Mecklenburg, Germany, 1897 .... ? case, ? death.

One of the most anti-American political daily papers in Berlin referred to some cases of trichinosis in Mecklenburg which were alleged to be due to American meat. Unable to learn the locality of this outbreak from any published records or from any of my scientific or medical friends in Berlin, I called in person on the editor of the paper in question. Sending in my name to the editorial sanctum, with word that I desired to trespass upon the editor's time but a moment and to take advantage of his courtesy to the extent of inquiring where I could learn the name of the town in which the outbreak took place in order that I might investigate it, I received a very brusque reply through one of the office servants to the effect that if I desired any information from that office, it would be necessary to apply in writing. The reception I received was such a marked contrast to the exceedingly courteous treatment I have always enjoyed in Germany when investigating the subject of trichinosis, that I did not follow the matter further. The original newspaper report read: "Last year cases of trichinosis were established in Mecklenburg after the consumption of American meats."[1] This statement can hardly be taken as anything more or less than a part of the anti-American policy followed by certain German papers, and can not therefore be considered seriously, especially in view of the fact that the same newspaper stated a few months later: "It is true that of the 688 cases of trichinosis (1892–1898), none of them could be traced to American pork."[2]

Mannschaft zum Frühstück von diesem Fleische *frischgeschabt* mit Salz und Pfeffer. Der Capitän selbst ass nicht von diesem Frühstück, auch nicht 4 Matrosen, welche am Morgen an das Land beurlaubt worden waren; alle übrigen 17 Mann aber genossen davon. Darauf erkrankte zuerst der Ober-Steuermann, und zwar sehr schwer. Die Aerzte konnten anfangs keine bestimmte Diagnose stellen; erst das rasche Nachfolgen vieler ähnlicher Fälle leitete sie auf die richtige Spur, und in einem ausgeschnittenen Muskelstückchen fand man frische Trichinen. Bei Abgang des letzten Briefes des Capitäns aus Iquique war noch keiner der Kranken gestorben, das Befinden des Ober-Steuermanns aber war der Art, dass man an seinem Aufkommen zweifelte, und 13 Personen der Schiffsbesatzung mussten als schwer Kranke zurückgelassen werden.

"Mit gepökelten nordamerikanischem Schweinefleisch hat also der bedauernswerthe Vorfall nicht das mindeste zu thun. Vielmehr folgt aus demselben nur von neuem, dass man niemals rohes, geschabtes Schweinefleisch geniessen soll—eine Unsitte, welche anderen Nationen unbekannt, im deutschen Volke aber trotz vieler übeler Erfahrungen, wie es scheint, nicht auszurotten ist."

[1] "Erst im vorigen Jahre sind in Mecklenburg Fälle von Erkrankungen an Trichinosis nach dem Genusse amerikanischer Fleischwaren festgestellt worden."—*Deutsche Tageszeitung, July 11, 1898.*

[2] "Richtig ist, dass von den 688 Trichinenfällen Keiner hat auf amerikanisches Schweinefleisch zurückgeführt werden können."—*Deutsche Tageszeitung, October 25, 1898.*

Oberplanitz, Saxony, 1898.......................... 1 case, 0 death.

One of the most rabid anti-American papers of Germany referred to a case in Oberplanitz which "might have been due to American pork." Not the slightest evidence was submitted in support of this assertion, which, because of the tendency, spirit, and tone of the paper, is scarcely worthy of citation.

Allg. Fl. Z., 1898, June 16, No. 48, p. 2: "Der Gemeindevorstand von Ober-Planitz theilt uns über die aus Planitz gemeldeten Erkrankungen an Trichinosis mit, dass die von den Aerzten behauptete Trichinosis nur auf gewisse Krankheitserscheinungen der Patienten zurückgeführt wird, dass aber weder durch die Seitens der königl. Staatsanwaltschaft hierüber vorgenommenen Erörterungen die Behauptung bestätigt worden ist, noch dass in der konfiszirten Fleischwaare oder in dem einer erkrankten Person entnommenen Fleischtheile Trichinen vorgefunden werden sind."—Allg. Fl. Z., 1898, July 7, No. 54, p. 1. Beilage: "Die hier aufgetretene Massenerkrankung, die anfänglich für Trichinose gehalten wurde, ist jezt erloschen. Es waren achtunddreissig Personen erkrankt, von denen zwei gestorben sind. Der Character der Krankheit hat amtlich noch nicht festgestellt werden können."—Der Trichinenschauer, 1898, (X) 14, July 15, p. 109: "Zur Trichinose in Planitz ist noch zu registriren, dass der Fleischer Meinhold, aus dessen Geschäft die Fleischwaaren stammten, deren Genuss die Krankheit verursachte, in Haft genommen worden ist und zwar, weil der Verdacht, dass das Schwein blind geschlachtet worden, sich bestätigt hat. Alle Erkrankte sind wieder gesund, was infolgedessen nicht auf Trichinose schliessen lässt. Es wird sich hier um eine gewöhnliche Fleischvergiftung handeln. Die Trichinen der verstorbenen Frau Becher dürften auf amerikanische Fleischwaaren zurücksuführen sein. Denn nach den massenhaft gefundenen Trichinen an der Muskulatur der Frau B. müssten die andern Erkrankten doch ebensoviel Trichinen haben, mindestens soviel, dass die Erkrankungen weit schwerer sein müssten als sie in Wirklichkeit waren. Es ist ein unglücklicher Zufall, dass die Auffindung der Trichinen der Frau B. mit der Fleischvergiftung zusammen fiel. Die amtlichen Ermittelungen haben, wie uns mitgetheilt wird, ergeben, dass die Krankheit mit Ausnahme der Frau B. Trichinose nicht sein kann.—Leipziger Tagbl., July 27, 1898. Zwickau, July 26: Von officiöser Seite wird mitgetheilt, dass die vor Kurzem in Planitz vorgekommenen Massenerkrankungen nach dem Genusse von Schweinefleisch nicht auf den Genuss amerikanischer Fleischwaaren zurückzuführen sei, da sämmtliche erkrankt gewesenen Personen nur vom Fleischer Meinhold ihre Waare gekauft hätten, dieser aber amerikanische Fleischwaaren nicht geführt habe.—Zeitschr. f. Fleisch. u. Milchhyg., 1898, VIII (10), July, p. 198: 80 cases, 1 death.

In connection with the outbreaks mentioned above, and in addition to the quotations already made, it may interest the reader to study two of the best known European articles upon the subject, one by Prof. Rudolf Virchow, of Berlin, the greatest living pathologist, the other by Dr. Bouley, one of the leading authorities in public sanitary matters in France.

AMERICAN TRICHINÆ.[1]

I. The presence of trichinæ in hogs was first observed in North America. As I have stated in my short article (Die Lehre von der Trichinen, 3. ed., 1866, pp. 5, 36)

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[1] Rudolf Virchow, 1884. Contributions to the Knowledge of Trichinosis and Actinomycosis in hogs. [Beiträge zur Kenntniss der Trichinosis und der Actinomycosis be Schweinen.] Arch. f. path. Anat., etc., Berlin, XCV, pp. 534–547.

Joseph Leidy found them as early as 1847. That infection of human beings also had already occurred follows from the discoveries by the same author, as well as those by Bowdich, who once observed 50 parasites in a piece of human flesh measuring one-fourth of a square inch, and estimated from this 7,500,000 parasites for the entire body. (Samuel D. Gross, Elements of Pathol. Anat., Phila., 1845, p. 216.) These observations on man, however, were upon recovered cases. Thus it happened that attention was not directed to this subject in America until after fresh trichinosis was noticed in Europe. In fact, the great frequency of trichinæ in American hogs was first established in Europe when we commenced here in Germany to inspect the importations.

It is not yet determined how widespread porcine trichinæ are in America. As far as I am aware, there is only one case known from South America, published in 1863 by Tüngel; a Hamburg ship in Valparaiso bought a hog, and a large number of the crew were taken sick on the voyage from eating the meat. However, where there was one trichinous hog, probably several will be found if looked for.

At the present time the fear that live trichinæ may be introduced from America has so increased that it has been decided to forbid the entry of American pork into Germany and France, and the question assumes more and more an international character. In agricultural journals it is even stated that numerous cases of disease have been noticed in our North German seaport towns following the use of American hams and even of bacon; Bremen, Hamburg, Lübeck, Rostock, and Königsberg have been mentioned in particular. In the session of the German Reichstag, on January 9, 1883, the Commissarius of the Bundesrath mentioned Düsseldorf, besides Bremen and Rostock.

Under these circumstances it seemed to me a duty to investigate the facts of the case more carefully, and to bring about a thorough discussion of the subject in scientific circles, even if, perhaps, no definite solution is reached. I applied for information to competent persons in all of the places named, sending them the following questions:

1. Have cases of trichinosis in man been diagnosed following the use of American hams, bacon, or other pork products?
2. Have live trichinæ been unquestionably observed in such articles?

The following was the result of these inquiries:

I. The only positive statements come from Bremen. Here the late Dr. G. W. Focke (Berliner klin. Wochenschrift, 1873, p. 191) reported that after the use of an American shoulder [ham], bought at auction, 12 persons were taken sick; later, after the use of other American hams, several other cases were observed, so that the total number ran over 20. He added that "investigation always showed numerous live trichinæ present" [in the pork]. The rapid smoking method had evidently killed the peripheral parasites, but near the bones the meat was raw and the parasites intact. The Gesundheitsrath (Referent Dr. Lorent) in his Fourth Annual Report on the Public Health, etc. (1877, p. 47), confirmed these statements, especially that the first case of trichinosis, observed in 1872, undoubtedly arose from American ham, "in which also numerous dead trichinæ were found."

According to the statements received by me from Dr. G. Strube, the parents, three sons, a maid, the cook, the shop girl, and a visiting relative, 9 persons in all in the family of a saddler, who had bought the shoulder in question at auction, were taken slightly ill in March, 1873, but none of them died. At the same time 2 other cases occurred in the practice of Dr. Göring. These followed the use of a salted ham which had afterwards been smoked in Bremen. These patients also soon recovered. In 1875 the inspection for the retail trade was made obligatory. Since this time there has been only one outbreak (1879) of trichinosis noticed as the result of eating American ham. The cases (a married couple and a servant) were diagnosed by Dr. Loose. Here also the cases were light, and recovered. Trichinosis following the consumption of American bacon or pickled meat had never been noticed.

According to a letter from Dr. Lorent, there were only 6 cases in the first outbreak. Otherwise he confirmed the statements of Dr. Strube, especially to the effect that no cases had occurred or come to notice in Bremen caused by bacon. Observations upon trichinosis among the sailors were conspicuous by their absence, although they eat a great deal of American pork and bacon, chiefly, it is true, when cooked.

It is to be very much regretted that the cases mentioned were not published in a more detailed and scientific manner, so that they could be submitted to serious criticism. Aside from the 3 cases in 1879 we are left to the statements of Dr. Focke, and although he was known to me personally as a scientifically educated physician, I can not help expressing my surprise that he remains the only one who not only found living trichinæ in American hams, but even found them "always present in large numbers." According to the official report cited the medical office in Bremerhaven in 1875 had urged an expert opinion of the Gesundheitsrath upon the facts claimed, "that trichinæ from salted American pork are not transmitted to other animals by feeding," but the Gesundheitsrath had cut short further discussion.

II. I will here state that the chandlers in Gütersloh (Westphalia), in a memorial of January 12, 1878, called attention to the fact that they had sent the pieces of American bacon and ham to Professor von Recklinghausen (Strasburg), with which he confirmed the harmlessness of the meat and the death of the trichinæ, both by microscopic examination and by feeding experiments. Other local investigators arrived at the same result.

This demonstration is evidently without value. If the trichinæ were dead, they could, of course, not multiply. But from this it does not follow that Dr. Focke was mistaken. Dr. Roper (1874, p. 280), on the other hand, was correct in drawing the conclusion from Dr. Focke's article, notwithstanding the fact that he himself had obtained negative results in Göttingen in feeding American sugar [-cured] hams, i. e., that utmost caution was demanded. However, he also was not able to bring forward any new facts in support of Dr. Focke's observations.

III. Dr. Engel-Reimers, of Hamburg, reported to me that live trichinæ had never been observed in the articles in question, and that all the feeding experiments with American materials carried on in the local anatomical department had resulted negatively.

Dr. Rudolf Krause writes me that the following was stated to him upon visiting the medical bureau of the state veterinarian, Professor Köhne:

1. "There has never been a case of trichinosis in Hamburg following the consumption of American bacon or ham. Two cases which have occurred in the past ten years were caused by home products."

2. "Live trichinæ have certainly never been observed. The experiments of feeding guinea pigs and rabbits with trichinous American pork, which failed in every instance, also speak against the parasites being alive, while all experiments with German trichinous bacon or ham have brought about infections. Consequently the pickling in America seems to destroy the vitality of the trichinæ."

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These results are indeed worthy of attention, although they agree but slightly with what has been ascertained in all other places in regard to the presence of trichinæ in German hogs. That not a single hog should be trichinous among more than 40,000 examined in 1880–1882, seems simply incredible. Such a result, it appears to me, immediately demands a more rigid control of the inspection. I lay the more stress upon this point because it has been shown repeatedly that American hams which were free from trichinæ, according to the Hamburg stamp, have elsewhere been found to be trichinous. (Cf. Skrzeczka, 1882, p. 142.)

IV. Dr. Türk, the physicus of Lübeck, reports the following to me:

1. Trichinosis has not occurred in Lübeck following the consumption of American sides or hams.

2. During the past ten years the American sides and hams examined were found trichinous to the extent of nearly 10 per cent. Investigations as to whether the trichinæ were to be looked upon as alive were not made.

V. I received the following answer from A. Petri, of Rostock, who has had long years of experience as a trichina inspector:

1. "American pork (bacon) has been examined here in Rostock to a considerable extent and a high percentage has been found trichinous; but all sides found trichinous have been confiscated by the police. This confiscation, however, extended only to such sides as were examined according to the law, for a municipal order states that only those sides need to be examined which are consumed here.

2. "As for the second question I can state with considerable safety, which you can in fact look upon as certainty, that not a case of trichinosis in man has occurred here for sixteen years. Only a single case, which at least wound up in Rostock, gave rise to the newspaper reports, and at that time I was questioned in regard to the matter by the police. The facts are as follows:

"In 1883 an outbreak of trichinosis occurred in a neighboring town, Tessin, and a number of people were taken sick. A soldier garrisoned in Rostock was in Tessin on a short leave of absence and became infected. As he was quite sick, and naturally the sickness did not develop until his return, the newspaper reports and the newspaper view that he had become infected in Rostock from eating American pork arose."

These are the facts of the case according to my best knowledge, and I can add that at that time a number of physicians were questioned by the police and they also denied the existence of trichinosis in man.

VI. Regierungs- and Medicinalrath Dr. Pincus writes me from Königsberg as follows:

"From personal experience I can only state that here in Stadtbezirk Königsberg not a single case of trichinosis has occurred from eating imported American pork, hams, pickled meat, bacon, etc., and that I have neither heard nor read that such cases have occurred in other places in the Regierungsbezirk Königsberg, or Gumbinnen. On the other hand, repeated cases have been established here, as elsewhere, from eating local pork. It is, however, unquestionably established that trichinæ, whether living or dead I do not know, have been found repeatedly during the past four or five years in meats, hams, etc., which were imported here in wholesale lots from America and then sold in the city and province. The cases have on the whole, however, not been numerous. Here in Königsberg, so far as I know, trichinæ have been found in American hams only once, when their presence was established by myself and by a druggist. The imported wares were said to have been inspected in Hamburg and to have been found free from trichinæ, on which account they were sold in good faith both by the wholesale and retail dealers."

In regard to the matter often mentioned in the papers, in which the members of the office of administration of the Königsberg merchants were involved, in so far as they were twice punished by the court for selling American bacon containing trichinæ, Professor Möller learned the following:

"The case occurred in 1879. Hams alone were not involved, but chiefly sides of bacon imported direct from America. In the thin muscles trichinæ were found, once in Pr. Holland, where the local veterinarian, Schmidt, made the examination, and a second time in Kreis Heydekrug, where the inspector could not be ascertained. Not a single case of disease occurred. The chandlers have since that time required a microscopic examination of their imported wares, and up to the time of the prohibitory decree had them made by Druggist Seydler, an educated and competent man. Seydler stated to me that he had several times found trichinæ in the muscular layers of the sides of bacon, in which he had noticed perceptible movements upon gently heating the object over an alcohol lamp. He made no ingestion experiments. Seydler thought that the sides of bacon were placed in brine but a short time in America, so that this, on account of the thickness of the sides—some sides measure up to 18 cm. in thickness—could not penetrate all the way through. In packing, salt is also placed between the sides, but would probably affect only the surface."

Here we meet again for the first time a statement in regard to movements of the trichinæ. Warming the object over an alcohol lamp is hardly a method to be recommended. By this method one can also occasionally notice a movement of dead muscle fibers. Upon this case I should like to base the warning that everywhere that trichinæ inspection is instituted there should be a provision for a second higher control. In addition, considering the importance which the Reichskanzler attached to this case, it would not be without value to know the grounds for the decision of the court.

VII. From personal experience I can give only negative statements for Berlin. Regierungs- and Medicinalrath Dr. Pistor writes me as follows:

"After looking through the records as far back as 1872, in which, as is known, the first advice regarding the importation of large quantities of American hams and sides was made public, I can only state that according to the statements at hand no cases of trichinosis in man have resulted from eating American pork. I feel it necessary to add, however, that the records give only an uncertain ground for statements in so far that in many reported cases of sickness the origin of the pork consumed could not be established with certainty.

"In regard to the occurrences from 1879 to 1881, negative statements are found in both of the general reports on sanitary affairs in Berlin for 1879–1880, and 1881, pages 143 and 118, respectively."

VIII. In the early part of 1881, sixteen cases of trichinosis, of which three were fatal, occurred in Düsseldorf, all resulting from the consumption of raw ham. The ham in question was designated by the merchant as a "Holsteiner," under which name they are sold from Hamburg. A definite decision regarding this point could not be obtained. The fact that the ham was extremely small does not speak in favor of its being an American importation, although suspicion existed that the dealer at that time imported American hams via Antwerp. Nevertheless this was so uncertain that the Government also took into consideration the possibility that this ham might have come from an American hog imported alive, as such were imported in large numbers in 1880. Enough; it could not be ascertained where the ham came from, in spite of all inquiry.

When these data[1] are reviewed it must be admitted that they are very scanty in comparison with the immense importations from America. For, aside from the trichinæ in which movements were noticed upon being heated over the alcohol lamp by the Königsberg inspector, live trichinæ have been found in American products only by Dr. Focke, of Bremen, but, so far as I have been able to learn, by no other observer. And yet the trichina inspection did not really begin to any considerable extent until after 1873 (or 1872), when Dr. Focke made his observations, and since then it has developed to such a degree that, according to the statistics of Geh. Med.-Rath Dr. Eulenberg, 3,808,142 hogs were inspected in Prussia alone in 1882. The more practiced the inspectors become and the more carefully they are controlled, the less have they found live trichinæ in American meat.

It is further certain that no epidemics of trichinosis have been caused in Germany by American meats. The greatest number of cases at any one time still remains that given in the first outbreak observed by Dr. Focke in Bremen, whether one wishes to estimate it at 12 or only 9 or even as low as 6. In all other places absolutely no cases have been observed after the consumption of American meat, and still less after using bacon. Where anything of this kind has been assumed in the heat of the discussion, with the exception of Bremen, the assumption has not been confirmed.

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[1] According to an extensive note in the Fleischer-Zeitung of February 12, 1884, No. 7, feeding experiments with heavily infected American smoked and salted pork have been carried on in the Holland Government Veterinary School since 1882, which, according to the Nederl. Staatscourant, are published in the Landbouw-Courant of January 24 of this year. All of these experiments were negative.

Science and administration accordingly find themselves in the peculiar forced position of being obliged to accept the statements of one, or at most, of three physicians in Bremen as assumptions for their further conclusions. The scientific deputation for the medical affairs in Prussia submitted to this necessity when upon April 24, 1878, it rendered an opinion in regard to the petition of the chandlers of Gütersloh, which demanded that the microscopic inspection of the American sides should be discontinued as unnecessary; the deputation insisted rather that this inspection should be continued strictly and with increased control, and the Royal Government adopted this opinion. As is to be seen from the annual report of Dr. Eulenberg, 51,427 American sides were examined in 1881 in Regierungsbezirk Minden alone, but not a case of disease was noticed after their consumption. Had the prohibition of importation not been issued the microscopic inspection of the imported meat, even where it is not obligatory, would surely have been just as completely organized as it has become necessary to organize it for the inspection of the home product.

However, I desire to remark that the importance of the Bremen observations can not remain the same for all eternity. If the prohibitory decree had not been issued it would have been shown in a few years whether in fact the danger is so great as must appear from the reports of the Bremen physicians. Probably the protective inspection would not have been discontinued at all even if the widespread fear had been proved unfounded, for even without every proof the possibility that live trichinæ might be imported must be admitted, and no one will begrudge the slight increase in expense. This holds in exactly the same manner for the Eastern importation.

With this I close. A further discussion beyond the limits of medical, and especially hygienic, competence is not intended here. I hope that the data given may serve as a starting point for a still more exact examination of the facts. The practical conclusion will then be drawn.

REPORT ON THE IMPORTATION OF SALTED PORK OF AMERICAN ORIGIN.[1]

GENTLEMEN: The consulting committee on public hygiene is again called upon to express its opinion upon the important question as to whether the importation of American pork should continue to be forbidden in France for fear of the dangers of trichinosis. In order to reply to this question it is necessary for us to consider what experience has taught us concerning the reality and the gravity of these dangers.

In former reports it has already been established that in spite of the free entry of American meats into France and the extensive consumption of the same by our population both in the cities and in the country, as well as in the army, trichinosis has not become a French disease; and this fortunate immunity we have always attributed to the general custom existing in France of not eating pork until it has been submitted to a temperature in cooking which thoroughly penetrates it and which the trichinæ can not withstand.

This is what is formally expressed in the report addressed in the name of the committee to the minister of agriculture and commerce on August 4, 1879:

"Experience having demonstrated," it is stated in the conclusions of the report,

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[1] Bouley, 1884. Rapport sur l'importation des viandes de porc salées de provenance americaine. < Rec. d. Trav. d. Comité Consultative d'Hygiène Publique de France, XIII, pp. 390–401. Meeting of November 26, 1883.

"that thanks to our culinary habits the dangers of trichinosis are almost nil in our country, the committee is of the opinion that there is no occasion, at present at least, to resort to prohibitory measures which would deprive the population of a very important article of food."

On September 6, 1880, this committee, upon again being consulted on the occasion of the prohibition which had just been decreed in Germany against the American dressed pork, replied that "cooking to the degree customary in France constituted for our population a protection much more efficacious than the inspection of pork carried out in Germany, and that consequently there was no occasion to imitate Germany in the measures which that country had just adopted in regard to dressed pork of American origin."

In 1881 the finding of trichinæ in American meats at Lyons by means of microscopic inspection caused considerable anxiety in public opinion.

This committee was charged by the minister of agriculture and commerce with the question as to measures to be taken in regard to American meats.

In the report which the committee addressed to the minister February 7, 1882, the immunity of our people from trichinosis was again mentioned and accounted for, namely, by the custom among all classes of thoroughly cooking the pork they used.

This report said: "If trichinæ are found oftener to-day than formerly in imported meats, it is not because they have become more frequent, but because the inspection has become more perfect, since it is to-day confided to men who are experienced in the use of the microscope."

The report therefore established that we do not find ourselves menaced to-day by any greater danger than in the past, and it expressed the opinion that one should refrain from resorting to prohibitory measures which are not justified. At the same time, making a concession to the public excitement, the committee believed it should advise a careful inspection of American meats at the ports of entry, without, however, expressing itself in regard to the nature of this inspection. The object of this, in the minds of the authors of the report, was, first, to show that vigilance was being exercised at the place of the danger to which, in the fright of the first moment, excessive proportions had been ascribed, and, further, to induce the American importers, by threatening their interests, to take measures to prevent the shipment to our ports of meat infested with trichinæ.

In spite of this concession, this committee remained faithful to its doctrine that the importation of American meat into France ought not to be forbidden because of any fear of trichinosis, since our people are protected, by their culinary customs, against the dangers which might result from the use of trichinous meat when such meat is consumed raw or insufficiently cooked.

January 5, 1882, this committee addressed a new report to the minister covering the question which he had again submitted, i. e., whether the prohibitory decree against American pork, which had been in effect since February, 1881, could be repealed without danger to the public health.

This committee stated in this report that nothing new had occurred since its report of 1881 which caused it to alter its opinion regarding the chief reason for immunity from trichinosis among the French people due to their custom of eating pork only after having submitted it to a thorough cooking, and it declared itself distinctly against the maintenance of the prohibition, basing its action in this, first, upon the fact that before the prohibitory decree of February, 1881, trichinosis had not been found in this country, although American meats had been imported and placed on the market without control, especially in the large working centers and in the army, where trichinous infection would not have failed to be recognized if it had manifested itself.

Furthermore, the committee in its report laid great stress upon the important consideration that American meats were submitted to a salting which, although without doubt it did not give an absolute guaranty against the dangers of trichinosis, certainly reduced them in a very great measure. Experiment has proved, in fact, that fresh trichinous meat, in which all the trichinæ are living and in full possession of all their activity, is very much more dangerous than salted trichinous meat in which the curing has killed the parasites, the more in number in proportion to its completeness and its age. Experiment demonstrates also that those parasites which are found still living in fully cured meats are far from possessing the reproducing powers of the living trichinæ which are contained in cysts in fresh meat.

This question regarding the freedom of the importation of salted American meats, already submitted four times to this committee, is again referred to us for consideration.

The committee can only remain faithful to its first decisions, supporting them both by the former arguments which were given in our first reports and by new documents which have been collected in countries where the importation of American meats has remained unhampered, as was the case in France before the prohibitory decree of 1881.

It was important to know whether in these countries the frequency of cases of trichinosis in man has been found proportionate to the consumption of American pork.

Following are the statements in regard to this point which have been given to us by competent men whom we have addressed upon the subject:

The first emanates from Mr. Fleming, veterinarian in chief of the English army, and author of well-known works upon the contagious diseases of domesticated animals and upon sanitary police:

"Trichinosis," writes Mr. Fleming to the chairman of our committee, "is, to tell the truth, a very rare disease in England, for our medical journals make no mention of it. I may say that it is almost unknown.

"There is here no prohibition of the importation of American-cured pork, for the authorities would not be able to find any grounds for forbidding the entry of an article which occupies an important place in the list of substances destined for public alimentation.

"Although trichinosis, or rather the trichina, was first discovered in this country, we can refer to only two outbreaks of this disease.

"I ought to state, however, that in England pork is never eaten raw; it is always cooked."

Dr. Wehenkel, director of the state veterinary school at Brussels, sent the following information to us on this subject: "I hasten to inform you that trichinosis in man, if it exists at all in Belgium, must be very rare. Up to the present time I have no knowledge of any case of this disease in this country, either in human or veterinary practice, with the exception of the cases of experimental infection.

"Trichinæ have, however, occasionally been found, but thus far only in American bacon; and the experiments which have been made to transmit these trichinæ experimentally have thus far given us only negative results."

Thus, in Belgium as in England, where the importation of American-cured pork is allowed and forms an important part of the food of the public, trichinosis in man remains a disease of extreme rarity, for no professional journal mentions it, either in the army or in the civil population. It would be entirely different, it may be asserted, if trichinosis without being a frequent disease was revealed here and there by a few cases. Let us recall what happened when Rayer discovered the com-awakened upon this point, to allow all the cases of this kind to pass under their eyes unrecognized.

Consequently, trichinosis in man may be considered as unknown in Belgium and in England, in spite of the extensive consumption there of American-cured pork. But trichinosis is relatively frequent in Germany, and from time to time we see it appear as a sort of an epidemic, in the sense that in localities, even in districts, it at the same time attacks a certain number of persons who have manifestly been infected from a common source. Does there really exist an actual relation between these cases and the consumption of American pork by the people? The prohibitory measures against pork which took effect a few months ago in the German Empire seem to indicate that such is indeed the idea of the Government of that country; but the information which has come to us by the letter which I am about to read to the committee shows that there can indeed be other motives for the prohibition than the interest of the public health. Here is the information:

"At the time of the discussion of the proposal of prohibition in the Bundesrath the Government commissioner was obliged to admit, upon being questioned by the representative from Hamburg and in general of the Hanseatic towns, that only three times had trichinosis been communicated to man by American pork: In 1871, at Rostock; [1] in 1872, at Bremen; [1] in 1881, at Düsseldorf.[1] Since then the Cologne case[1] in 1883 has occurred. In the immense majority of cases trichinosis in man in Germany is due to indigenous pork.

"If Germany has taken this measure against American pork, it is less the question of public hygiene which has been brought forward than the intention to favor certain breeders in northern Germany who were the originators of the proposition. The sanitary police has again served as the flag for the prohibitionists. The high personalities of Germany, the legislators from the north, are all extensive agriculturists who suffer from American competition. The hopes which they had based upon the prohibitory measure which they have obtained have been frustrated, for hogs from the Danube provinces are now entering into competition with the German production on the German markets.

"It has not escaped anyone that the prohibition of American meat was only a pretext. This has recently been admitted at the International Veterinary Congress at Brussels by some of its most competent members."

We will add to these statements those which M. Zündel, veterinarian in chief of Alsace-Lorraine, published in the Recueil de Médecine last March.

"Trichinosis," M. Zündel says, in this article, "is frequent in the north of Germany, and one involuntarily asks himself if Germany really has a right to accuse America of furnishing so many trichinous hogs."

"The trichinous meats of America have at least the advantage of only very rarely communicating the parasitic infection, because the trichinæ are killed in the majority of cases by the preparation to which the meat is subjected at Chicago or Cincinnati, while such is not the case with the pork one is called upon to eat in north Germany, and which, following the customs of the country, is offered to you only imperfectly cooked. Although at the time of the recent discussions in the German Bundesrath, the Government commissioner was able to cite only three cases of trichinous infection in Germany due to the consumption of American pork, he could have cited by thousands cases occurring during the same period of time from indigenous trichinous hogs and almost by hundreds the number of cases of death which this infection occasioned.

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[1] See pp. 156, 157 of present report.

"The following are the statistics of trichinosis observed in hogs in Prussia for six years, taken from the official reports of Dr. Eulenberg:

Year.	Hogs inspected.	Found trichinous.
1876	1,728,595	800
1877	2,857,272	701
1878	2,524,105	1,222
1879	3,213,155	1,975
1880	3,342,303	2,284
1881	3,118,780	1,695

"Which gives a total of 8,677 trichinous hogs in 16,784,210, or 1:1,934.

"To find these trichinous hogs, an army of microscopist inspectors was necessary, the number of which increased from 12,000 in 1876 to 18,581 in 1881. In spite of this the number of published cases of trichinosis in man has been considerable; i. e.—

	Cases.		Cases.
1876	358	1879	400
1877	356	1880	200
1878	488	1881	238

or 2,040 cases in six years, an average of 340 cases per annum, with a total of 84 deaths, or an average of 14 deaths per annum.

"The following figures give the extent of occurrence of trichinæ in pieces of pork of American origin:

Locality.	Pieces examined.	Found trichinous.	Per cent.
Kiel, 1880	1,229	29	2.36
Stettin	41,364	468	1 +
Hamburg	78,597	836	1 −
Altona	10,352	178	1
Minden, 1879	50,000	243	.48
Cologne	1,760	15	.85

"The proportion of infected pieces in the American importations given in these statistics is certainly not peculiar to Germany. It must evidently be the same in the pork of the same origin imported into England, Belgium, and France. But notwithstanding this we do not find that trichinosis in man has manifested itself in these latter countries to such an extent that the physicians should at least make mention of it in their lectures, and in many and varied accounts with which the medical journals are filled."

Whence this immunity? Evidently from the culinary customs. Given the same conditions of trichinous infection, the chances of producing effect will be greater in the same proportion that the meat is less cooked, as is the case in Germany.

But, if the statistics do give in Germany the trichinous infection of American meat in the proportion stated above, on the other hand only four times can be cited in which trichinosis in man can [has been able to] be traced to the use of this meat; from which it must be inferred that the trichinæ which the meat conceals are ren-

All the trouble comes from home production. As a result one can truly say that from the hygienic standpoint the prohibition of American meats (in Germany) rather had for its object to force the people to use exclusively home-production meats, which are much more dangerous than salted meats, because the trichinæ which they conceal are in possession of all their reproductive powers.

It is now necessary to examine the question whether the prohibitory measure which closed the French ports to the *direct* importation of American pork has had the result which was anticipated, i. e., to prevent the consumption of these salted meats from America from which infection was feared. One condition was lacking in order to make this measure absolutely efficacious in this respect, and completely corresponded to the intentions which led to its adoption, i. e., to apply it to the pork of all countries, on all our frontiers, both land and sea. But our ports, as our land frontiers, having remained open to importations from England and Belgium, a great amount of American bacon has only to change its name in order to be admitted into France and be consumed here. In fact, among the meats supposed to be English which enter the port of Bordeaux a certain quantity is of American origin; and the same holds for Belgian bacon; with the result that the prohibitory measure has caused the loss to our merchant marine of the benefit of the extensive commerce which accrued from America, while the public health has not received from it the protection which was expected. And, finally, as the use of American-cured pork has been able to continue in France to quite a considerable extent in spite of the prohibition against it without having caused any of the inconveniences which people thought they had to fear, this fact should be used as a new argument to show that the prohibition ought not to be maintained, since it is eluded on quite a great scale, and only has as a final result a considerable loss for our merchant marine.

The committee should now examine the precautionary measures which should be taken if the prohibitory decree is repealed and American pork enters into French consumption as was the case prior to 1881.

The microscopic inspection is utterly impossible. One can conceive of its rigorous application on entire animals, or on halves, for the trichinæ have certain places of predilection where they are encountered quite constantly in infected animals; so that if they are not present in the muscles for which they have a preference, it may be legitimately inferred that they are not present in the other muscles. But the boxes of salted meat exported from America contain parts of several animals, and under such conditions the examination of one does not indicate anything, either good or evil, as to the condition of the others. Hence the necessity, which is an impossibility, to submit to a microscopic inspection not only all of the pieces, but the different parts of the same piece. Technically this is not possible; on the other hand, it would lead to such expense in unpacking the pieces and repacking them in alternate layers of meat and salt that to prescribe this could be considered as equivalent to the maintenance of the prohibition, as it would not be accepted by the trade.

The committee believes all the more that it should not advise this, since, after all, the microscopic inspection would not be complete, and consequently it would leave chances that trichinous meat would be put on the market. Witness the epidemics of trichinosis in man which we see break out from time to time in Germany in spite of the army of 18,000 inspectors whose duty it is to find and condemn trichinous meat.

Although the microscopic inspection applied to millions of kilograms is not possible, there is another much more practicable inspection which can be recommended, i. e., to determine whether the pork sent from America is perfectly salted—"fully cured," as expressed by the Americans.

This condition gives a guarantee which is not illusory, for the experience of all countries testifies with one accord that the dangers of trichinous infection for man are much less when cured pork is used for food than when fresh pork is consumed, the same culinary conditions being assumed for the two cases. Curing, therefore, renders the meat wholesome, either by killing the trichinæ, as is generally the case, or by greatly reducing the reproductive power of those parasites which withstand its action for a longer or shorter time.[1]

It is therefore necessary that imported meats should fulfill the condition of good conservation and perfect salting, as expressed in the technical language of the American trade by the expression "fully cured," a peculiar condition characterized by the grayish exterior, firmness to the touch, and the odor of walnut, which is noticed upon sounding. This condition can be easily ascertained by the municipal meat inspectors already employed in most cities in France. Severity in this particular inspection of the salted meats would furthermore result in placing the foreign shippers on their guard against the losses which would not fail to occur from the nonadmission to our markets of cargoes of meat not fully cured.

But although complete curing gives to the consumer of American pork a very good guaranty against the dangers of trichinous infection, even when this meat is eaten raw, this committee believes it ought to repeat that the immunity from trichinosis which our people enjoy over the Germans is chiefly due to the custom of not eating pork of any origin whatever except after it has been thoroughly cooked.

The action of cold has also been spoken of as a method of making trichinous pork wholesome. In fact, the laboratory experiments made in France have demonstrated that in salted meat the trichinæ do not resist a temperature of minus 10° C. On the other hand, competent experimenters in Germany claim to have found living trichinæ in fresh hams which had been exposed one night in winter, and even for three days, to a temperature of minus 18° to minus 20° R.

New experiments should therefore be made to solve this interesting question of the action of cold as a means of rendering trichinous meat wholesome.[2]

The consulting committee on public hygiene in France believes it necessary to again give the advice "that the importation of salted meats of American origin can become free as it was before the decree of February 18, 1881."

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[1] The experiments made in Germany by Küchenmeister, in common with Haubner and Leisering, prove that the trichinæ are killed by prolonged salting. (Haubner, Küchenmeister, and Leisering. Helminthologische Versuche. Dresden, 1863.)

[2] In the experiments of the Museum Laboratory of Comparative Pathology, the death of the trichinæ was recognized by the staining of their bodies when they ceased to live, while living trichinæ were not stained. This is an important differential character in determining the degree of danger of meats in which trichinæ have been found.

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U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY.
D. E. SALMON, D. V. M., Chief.

AMERICAN BREEDS OF FOWLS.

II.—THE WYANDOTTE.

BY

T. F. McGREW.

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Animal Industry,
Washington, D. C., September 3, 1901.

SIR: I have the honor to transmit herewith for publication a bulletin on the Wyandotte breed of fowls, being the second part of a report on "American breeds of fowls."

The Wyandotte, like the Plymouth Rock, is a general-purpose breed, and has the same qualities to recommend it. The differences between these two breeds, except in feather, are not many nor great. The Wyandotte is somewhat smaller, lays eggs which average smaller, and is perhaps a trifle more difficult to breed to standard requirements. On the other hand, its meat has a finer grain, it is hardier and more active, and its more numerous varieties give a greater range for the fancier to exercise his taste in selection. When carefully bred, both are splendid fowls and are worthy of every effort to maintain them at the point of greatest excellence. The complicated uniform and beautiful markings seen on the plumage of some varieties of Wyandottes excite unbounded admiration, and demonstrate the perfection to which the fancier's art has attained.

There are no better general-purpose fowls than the Plymouth Rocks and Wyandottes. The choice between the two must depend upon the taste of the breeder. Both should be better known, more widely distributed, and more carefully bred for utility qualities. In the production of table fowls of all kinds—broilers, roasters, and capons—they are unsurpassed, and in egg production they are capable of equaling the most prolific of the smaller breeds.

Respectfully,

D. E. SALMON,
Chief of Bureau.

Hon. JAMES WILSON,
Secretary.

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AMERICAN BREEDS OF FOWLS.

THE WYANDOTTE.

THE ORIGINAL WYANDOTTE.

The Wyandotte was for years, before it reached its present perfected state, without a name. Its presence was far from attractive, and its average quality was hardly the equal of the common barnyard fowl. So far as the writer remembers the first Wyandottes were called "Sebright Cochins." The result of investigation was convincing that the Sebright Cochin was the product of the union of a Sebright Bantam and a yellow hen, which might have been a Cochin. Such crosses were termed "mongrels." While there was little attention paid to them prior to 1870, immediately after that year they began to attract some public notice, and mention was made of them in a few of the stock papers of New York State.

A later investigation has shown that several parties, in the same section of the country, made an effort to produce the Sebright Cochin by crossing the Sebright with the Cochin. This fact is known from letters which passed between those who made the experiment and who interchanged stock, the letters having been presented for publication. The result of the first accidental cross no doubt prompted others to try the experiment. Consequently the original foundation of what are now called Wyandottes came as an accidental product of an unusual union.

THE ACCEPTED THEORY.

The theory of their origin, as accepted by those claiming to be authority, is as follows: A Mr. John P. Ray, of Hemlock, N. Y., originated a rose-comb fowl by a cross of a Sebright Bantam male and a yellow "Chitagong," which he named Sebright Cochins.

Others who became interested (among whom were the Rev. A. S. Baker and Mr. Benson) produced the same kind of fowl. These three gentlemen became so interested with their newly formed fowls that one of them had them illustrated in the agricultural press during 1872. As a result of the publication of such illustrations, these fowls were spread over the country into several States, and were advertised in the columns of poultry journals soon after. Thus, by unguided crosses, was the foundation of this wonderful breed begun. Some carefully planned crosses soon followed, and the able breeder began the labor of molding them into a set type, or form, and of clothing them in a plumage that should be distinctly laced about the edge.

THE WORK OF COMPLETION.

To produce the Wyandotte was no inconsiderable task. To bring the solid buff of the original cross into a white center with black lacing was hardly conceived of in the start, as is proved by the methods employed later. Both Silver Spangled Hamburgs and Dark Brahmas were crossed upon the Sebright Cochin; Silver Spangled Hamburgs and Buff Cochins were bred together; and the best of all these crosses merged into what were called Eurekas; also Excelsiors, Ambrights, American Sebrights, Columbias, etc. While all these many names were applied, as seemed to please the fancy of those working on their advancement, the majority of the fanciers had about concluded to call them American Sebrights, and the managers of the American Poultry Association, at their meeting of 1876, were asked to accept them under this name. Fortunately for the breed, their admission was refused. This spurred their admirers to more extended efforts, and so, when the time of their recognition came (1883), they were a much improved breed.

THE NAME SELECTED.

The name Wyandotte was proposed by Mr. Houdlette, at Worcester, Mass., in 1883, and accepted as the future name for the fowl. A general dissatisfaction was shown all over the country at this choice as a name, but those who made the decision should be praised now for their fortunate selection. Time has proven it a most appropriate name, and no one could wish to have it changed.

Since the one original Wyandotte was named, the multiplication of varieties has made distinguishing titles necessary. We now have, as listed in the Standard, the Silver-Laced, Golden-Laced, White, Buff, Black, and Golden-Penciled, or Partridge, varieties. In addition to these we have the following new ones claiming admission: The Silver-Penciled, the Buff-Laced, and the Columbian. In England they have, besides these, a Wyandotte called the Cuckoo Wyandotte. All of these varieties will be mentioned in turn.

EARLY TYPE AND COLOR.

The original type of the Wyandotte was the Asiatic, and at the time of origin the Standard favored the Cochin type more than any other. If it were possible to establish these individualities of form or "breed characteristics" in the minds of all our poultry people, it would result in our having in our poultry as striking a resemblance of form as we have in our sheep, cattle, and horses. As far as the eye can reach, it is possible to distinguish a flock of Merino sheep from any other breed; the same is true of cattle and horses. The breed characteristics are no stronger in these animals than they should be in fowls.

When the Wyandottes were admitted as a breed to a position among our Standard-bred fowls they had reached a form and color which were quite distinctive. The males favored the Dark Brahma in form and color, the body color being quite like a well-splashed Dark Brahma. They had smooth legs of a smoky-yellow shade and the rose comb. The females, in form, favored our present Silver-Spangled Hamburg females. In color and markings they were quite crude. Some had grayish white breasts and backs, while others had breasts of white ticked with a darker color and backs mossed with the gray of the Dark Brahma.

A better description would be that they resembled half-sized Dark Brahmas of very inferior color and having Hamburg combs and smooth shanks. In many cases the breast feathers of the male were black, with a white stripe through the center a little larger than the shaft of the feather. The back color of the male was mixed black and brown, while in the female it was mossed quite like the marking of a very inferior Dark Brahma. Such was the original Wyandotte of this now much-valued breed.

ITS RISE AND FALL.

There was an increasing demand for Wyandottes throughout the United States. Anything that resembled their description was sent forth to fill the demand, and much inferior stock was spread about under the name of Wyandotte. The result of such distribution was of temporary injury to the advancement of the breed. Then came the good results obtained by the skillful handling by expert breeders, and the several varieties of Wyandottes were placed in their present well-deserved position.

Soon after the original Wyandotte there came the Golden strain, the advent of which made it necessary to select a distinguishing name for the other; thus we have for the two varieties the names Silver-Laced Wyandottes and Golden-Laced Wyandottes.

Conditions of form and color have changed from time to time. In the Silvers we had the very dark, heavy marking which almost destroyed the top color of the males and reduced the white center in the plumage of the female (also on the breast of the male) to almost a stripe or small spot. But in the Goldens a continued effort was made to preserve clear top color in the males and the open center of plumage in both male and female. At the present the open center, edged about like the plumage of a well-marked Sebright Bantam, is desirable. Some beautiful specimens of this type have been produced.

THE MODERN WYANDOTTE.

All Wyandottes, no matter what color they may be, must have the same true Wyandotte shape. The demands of the Standard are positive on this point, and this rule should be enforced to the fullest extent. Every breed should be compelled to conform absolutely to the rule that "shape makes the breed, while color designates the variety." Color simply fills the minor position of being a variety emblem, while true shape settles beyond cavil the breed to which a specimen belongs. Therefore, in following the descriptions of the several varieties of the Wyandotte, the one true form must not be lost sight of. The American family, or breeds, of fowls are divided into three distinct types—the long, or extended, type, belonging to the Java; the medium formation of the Plymouth Rock, and the close, compact form of the Wyandotte. All these are shape distinctions, which, if followed to the letter of the rule in each, would result in far more beautiful fowls in all varieties than can be while one variety encroaches upon the special characteristics of the other.

STANDARD FORM.

The head of the Wyandotte, as viewed from the side, should be rather round; broad across the skull, like the Brahma head, but not full or prominent over the eyes; it should round off in the rear to the juncture with the neck, and should have a low-set rose comb (the comb of the female should be much smaller than that of the male) oval on top, from front to rear—often spoken of as a "rocker comb." The surface of the comb must be perfect—nice even points all over. Deep corrugations or irregularities are undesirable. The spike at the end of the comb must be quite distinct, but not so long as in the Hamburg. It should turn downward at the end, or point. In fact, the whole comb from front to rear should conform to the shape of the head. Large or oversized combs must be avoided.

The neck should be short and gracefully arched—that of the female rather shorter than that of the male. The hackle of the male should be long, flowing, and quite abundant, giving the very full appearance at shoulders. If the neck inclines slightly forward it adds to the finish of both head and neck. A long, slim neck, head, or back detracts very much from the good appearance of a specimen.

The description of back, breast, body, and fluff will be here combined, instead of considering each separately. The whole contour of the Wyandotte is short and compact, with a tendency to cushion and fluff. The back of both male and female must be short, broad, and flat at the shoulders; the saddle of the male broad, full, and prominent, or, as worded in the Standard, "broad, full, and rising, with a concave sweep to the tail," thus forming a back quite similar to the back of the Brahma, while the same section of the female should be slightly cushioned. The difference, as here set forth, between the Plymouth Rock and the Wyandotte should be noted. The male of the former must have a back with a slight concave sweep to the tail, while the latter must have the full concave sweep. The female Plymouth Rock has the slight concave sweep, while the Wyandotte female must be slightly cushioned. These are distinctions that all can readily grasp and may be remembered as a guide to proper form. In addition to this the Wyandotte has a full-feathered, well-rounded fluff, while on the Plymouth Rock only a moderately full fluff is demanded. To further illustrate the tendency to Cochin form, it may be stated that the breast of the Wyandotte, when fully up to Standard demand, is broad, deep, and fully developed in both male and female. The whole description of the complete body demands the close, compact formation that is the distinguishing feature of the breed.

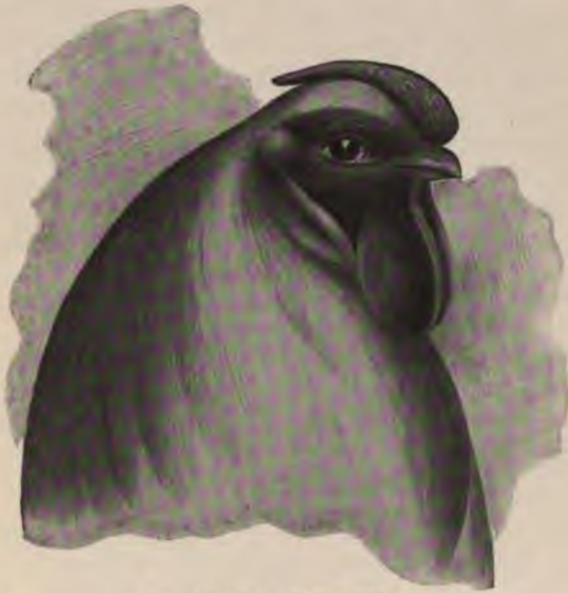


FIG. 1—Head of Wyandotte male.

The sections of neck, back, body, thighs, and shanks are all described as being short, while the same sections of the Plymouth Rock are described as being medium in length; or, in other words, all these sections must be shorter and more compact in the Wyandotte than in the Plymouth Rock. No one should be misled by these descriptions, but unfortunately the entries in these classes at our exhibitions go to prove that many who claim fully to understand these breeds do not conform to the demands in their selection of specimens for exhibition, and it is too often that we see several forms among specimens which are shown by the same exhibitor.

The tail of the Wyandotte is quite like the tail of the Brahma in form. The main tail feathers should be well spread at base, carried so as to complete the proper formation of back, and not cause breaks, or angles. The thigh should be short, stout, well spread, and completely covered with soft plumage; shanks rather short and stout and set well apart, and should be perfectly smooth and free from all appearance of down or feathers. Any tendency to a narrowness between the legs or shanks is an ugly deformity which should be discouraged.

THE UTILITY QUALITIES OF THE WYANDOTTE.

It is claimed that the unusual combination of so many breeds in the make-up of the Wyandotte causes it to produce eggs of uncertain shape and size. If this contention is true, why is not the same true with all crossbred (or made breeds) fowls? Whether this is a fact or not, only careful observation will determine. It is a well-established fact that the egg production of fowls can be improved in both number and size if attention is given to the selection of breeding hens. Only those that lay the greater number of the larger size eggs should be selected.

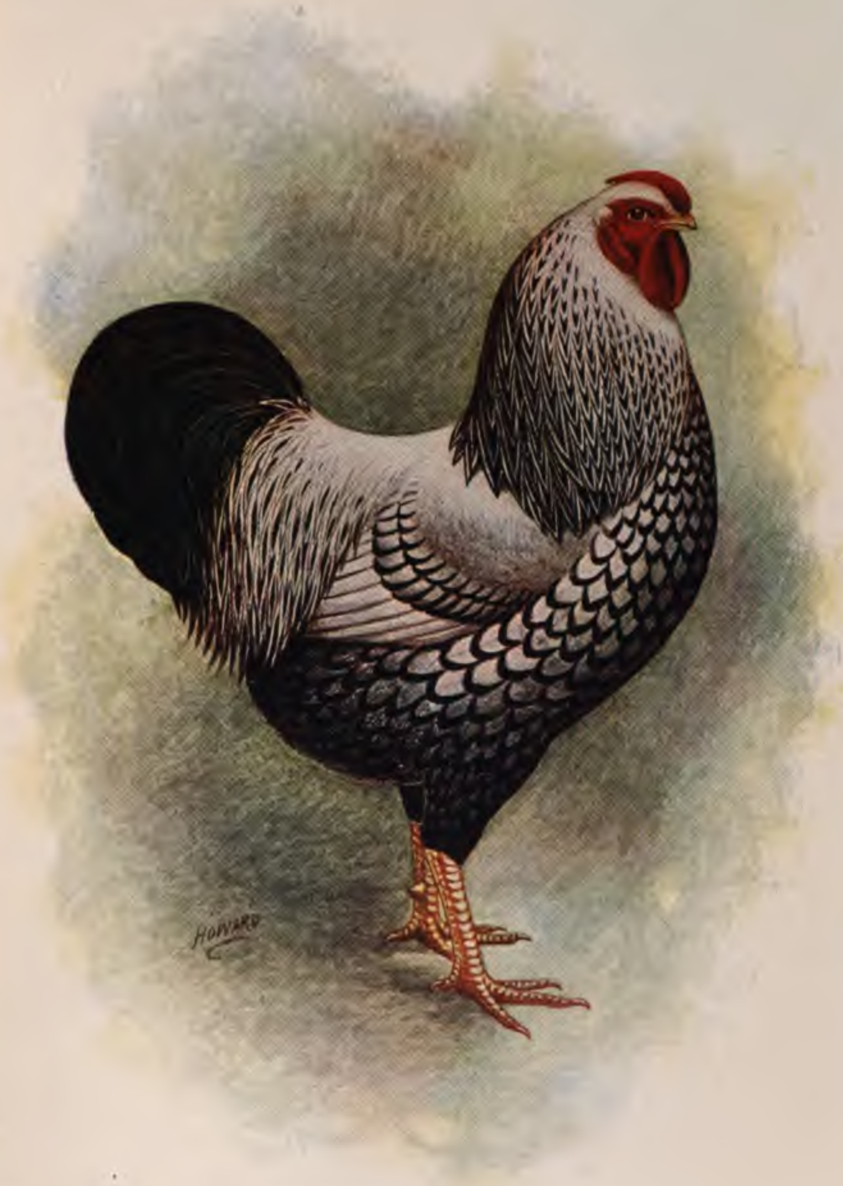
If the greatest attention is paid to inbreeding for form and color, the number and size of eggs produced by each hen will grow gradually fewer and smaller, while, if the whole purpose is toward more and larger eggs, that result will be obtained, and form and color will gradually decline. The Wyandotte, having been for years the favorite as an exhibition fowl, it may be possible that some of the most extreme line-bred strains have suffered in number and size of eggs, but this fact has no bearing upon the average utility flocks that are kept for producing table eggs.

All records place the Wyandotte about the equal of the Plymouth Rocks in egg qualities, although the Plymouth Rock is credited with an average of somewhat larger eggs, perhaps justly so; but eggs are sold by the dozen, and an ounce or two in a dozen counts for little. The value is in the number produced. At the same time, the larger egg is more attractive, and it is well to give attention to increasing the size.

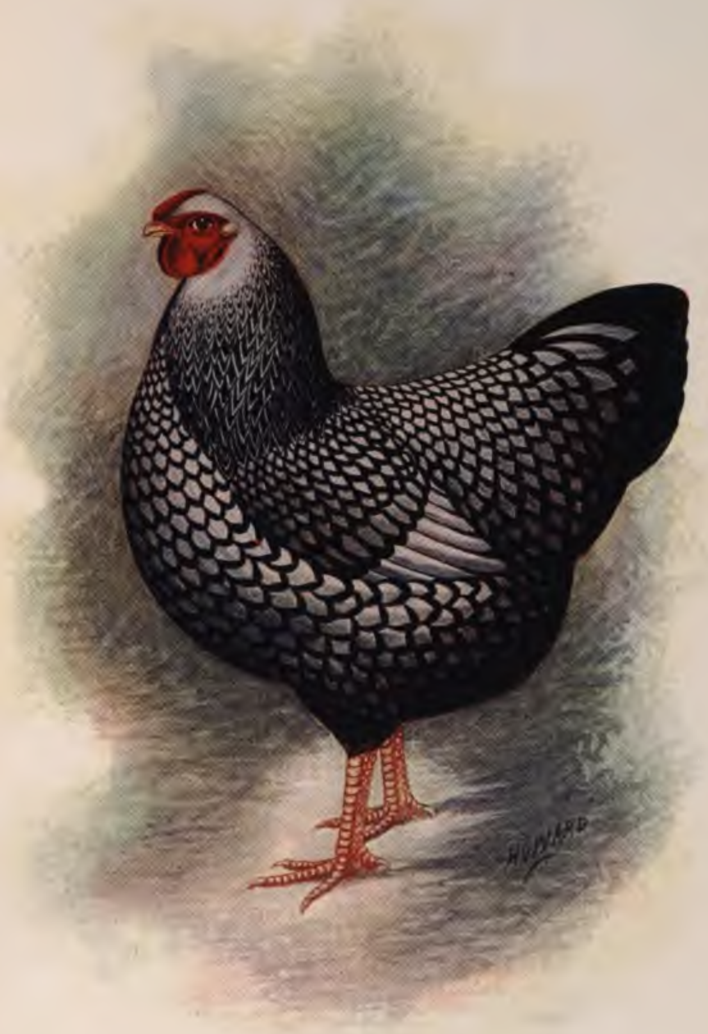
No fowl can surpass the Wyandotte for market poultry. At any time of its existence, from the small broiler to the roasting fowl, it is always plump and attractive. The close, compact body, the plump breast and rich color of meat and skin give it many advantages over others. It looks better than the long, lanky type of fowls, even when in inferior condition.

THE SILVER-LACED WYANDOTTE.

The color and markings of the Silver Wyandotte, when in perfection, are most attractive. The many difficulties encountered in their



SILVER LACED WYANDOTTE MALE.



SILVER LACED WYANDOTTE FEMALE.

production in anything like Standard color demands have withheld them from public favor. As the male and female differ so widely in color and markings, a full description of each is given. The head plumage of male should be silvery white with a black stripe in the feathers. The neck plumage should be silvery white with a clear black stripe down the middle of each feather, tapering to a fine point, which ends near the extremity of the feather. This black stripe must be completely surrounded with white, entirely clear from any discoloration. The shaft of the feathers may be white. The back and wing bows—in fact, the whole top color—must be clear silvery white, free from all foreign color. The saddle feathers must be striped like the neck or hackle plumage, and, in addition to this, they should have in the widest portion of the feather an extended diamond-shaped center of white. The whole top color, including neck, must be of silvery white, entirely free from any foreign color. The presence of a tingeing of black or brown on the edging of the feathers casts an unattractive dark appearance over the back; in fact, this is one of the most prevalent color imperfections.

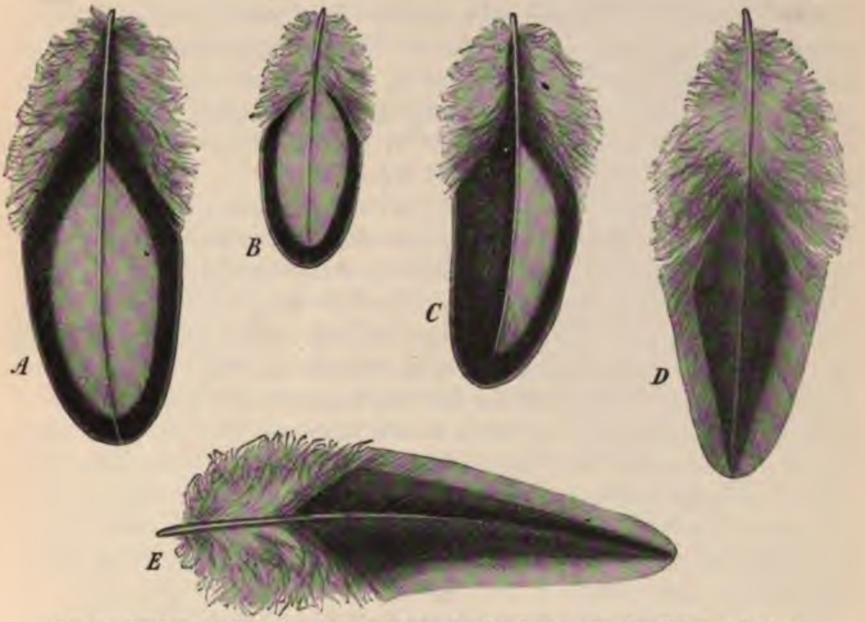


FIG. 2.—Feathers of Silver-Laced Wyandotte. *A*, wing feather, female; *B*, breast feather; *C*, wing covert; *D*, hackle, female; *E*, hackle, male.

The breast plumage and web of feather is described as follows in the Standard: "Web of feather black with a large white center that tapers to a point." An effort is being made, however, for a large, full white center, simply edged about with black, like the plumage of the Sebright Bantam, the white to be as clear as possible, and the black to be as lustrous as can be produced. This style of marking should extend, so far as it can be obtained, under the body and along the thighs. The remainder of the body plumage should be black with a narrow center of white; fluff, dark slate, powdered with gray; the entire undercolor dark slate. Primaries should be black, lower portion of feather edged with white; secondaries black, lower half of feathers white; wing coverts, upper web black, lower web white edged with black, widening at the tip, forming the double bar across the wing. Tail glossy black; the lesser coverts black, edged with white. The combination of colors of wing gives the beautiful wing bow, the double bar of laced feathers across the wing, and the partially laced bay which is hid away under the saddle plumage.

This gives in the male the top color of the Dark Brahma, including the well-furnished, rich glossy black tail. The beauty of color depends largely upon the purity of the shade. When disfigured with black or brown shading, the beauty is destroyed. The presence of perfect wing bars and bay gives a finish that adds greatly to appearance. When the true top color is well backed up by good breast and body, it completes the true-colored Silver-Laced Wyandotte.

The female has the appearance of having the same style of marking throughout, while there is, in fact, considerable variation, as described below. Our Standard specifies that she must have the clear silvery gray color for head; neck plumage, silvery white, with a black stripe tapering to a point. The white must entirely surround the black and be free from any dark shading; shaft of feather, white; color of back plumage, black, with a medium-size white center, the white to be free from any dark shading, the black a rich lustrous color; web of feathers of the breast, white, laced about with black. The white center should be large and pure in color; the black lacing quite even, and to run under the body and gradually grade into solid black, with a narrow stripe of white; fluff, dark slate, powdered with gray; undercolor throughout, dark slate.

Wing primaries black, lower outer web edged with white; secondaries black with lower or outer half of lower web white; web of wing and shoulder coverts white, heavily laced with black, the black lacing growing wider over the wing bow; tail black; greater coverts black; lesser coverts black with narrow white centers; thighs black or black powdered with gray.

Beak of both male and female dark horn color, shading to yellow at the point; shanks and toes bright yellow; eyes bright bay; ear lobes bright red, free from all discoloration.

While the above describes the color and markings of the female, the present tendency is toward the very open center and the narrow black lacing, like the plumage of the Sebright. A few specimens of this character are seen with almost pure white with bright lustrous black lacing. The real beauty of the female depends upon the clearness of color, being entirely free from all tendency to dark shading in the white or white edging on the black.

MATINGS TO PRODUCE SILVER-LACED WYANDOTTES.

The first requisite of good results from any mating is perfection of form and breed characteristics in both male and female. It is almost an absolute certainty that poor specimens will produce of their kind; the most advanced quality only must be used as breeding stock. Great care must be exercised in the selection of specimens that are very strong in comb qualities, shape of head, and the parts belonging to it. The specimens selected must have bright, well-formed eyes of the true bay color. No two features count more in favor of or against a Wyandotte than comb and eyes. The very best quality in these adds much to their good appearance.

Next in importance to good form is size, which should be encouraged so far as is allowable within the limit of maintaining true form. Oversize detracts from the Wyandotte shape; undersize counts against their value. For this reason it is best to have as much size as can be maintained with the best possible breed characteristics. So far as possible, good large-sized females should be used; it must be borne in mind that size comes largely from the female, while the male has the greater influence for color and head properties. For this reason, males with poor combs and bad color, as well as all small or undersized females, should be discarded from breeding stock.

The top color of the male should be very clear and true and as pure and silvery white as it is possible to obtain. The striping of hackle and saddle should be clear and free from dark edging; breast plumage darker than is demanded in the offspring; the white center not to cover more than one-half the feather, and the edging rich glossy black; tail of the richest metallic black, with no trace of mossing in any part of plumage. If good open lacing is hoped for in the pullets, the male must have the white diamond center in saddle plumage and no trace of bad color on back.

The females should have most perfect open lacing. If they are so finely laced as to have simply a narrow black band around each feather, so much the better, providing the centers are all true in color and free from any mossing whatever. The edging should be a rich glossy black with the beetle-green sheen. Such distinct markings are necessary to the production of the Sebright lacing. Matings of this kind are apt to produce many specimens which will be too light for any use other than table poultry. At the same time some beautiful specimens will result as part of their offspring.

The above mating should produce by far the best females, but the markings are rather too light for the production of males. The male described above when mated to females whose plumage is about equally divided in color—not more than one-half white, but pure, true, and rich in color—will produce far better males than females. Both styles of female can be mated with the same male and assure the production of males and females of good quality from the one pen. Although some continue the use of females that have so little white centering in plumage as to look like a spot or stripe on the feather, the use of these should be considered a waste of time. Not one open-laced specimen of good quality can be produced from this kind. It is well to bear in mind the necessity of having more black lacing on the breast plumage of male than female; but to secure good results, about an equal division of color is best.

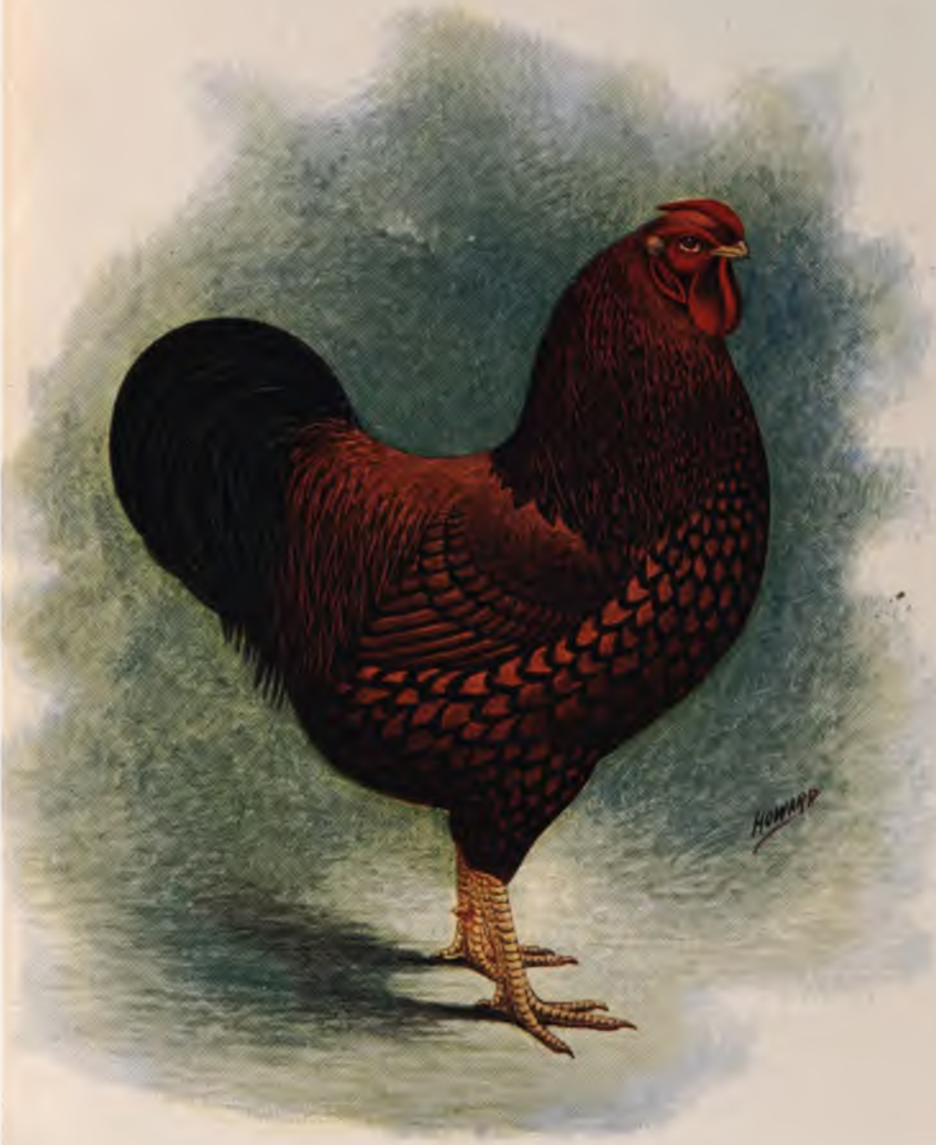
These matings are all on the side of the lighter shade and narrow lacing, and will produce quite a percentage of young that are too light for practical purposes—a result that seldom comes, because the majority of all matings are so very dark as to produce the larger percentage of young too dark for show purposes. It is quite easy to mate the darker ones together and have them as dark in color as could be wished. This gives one the choice of mating according to fancy, with full assurance of desirable results from the light, medium, or dark matings.

THE GOLDEN-LACED WYANDOTTE.

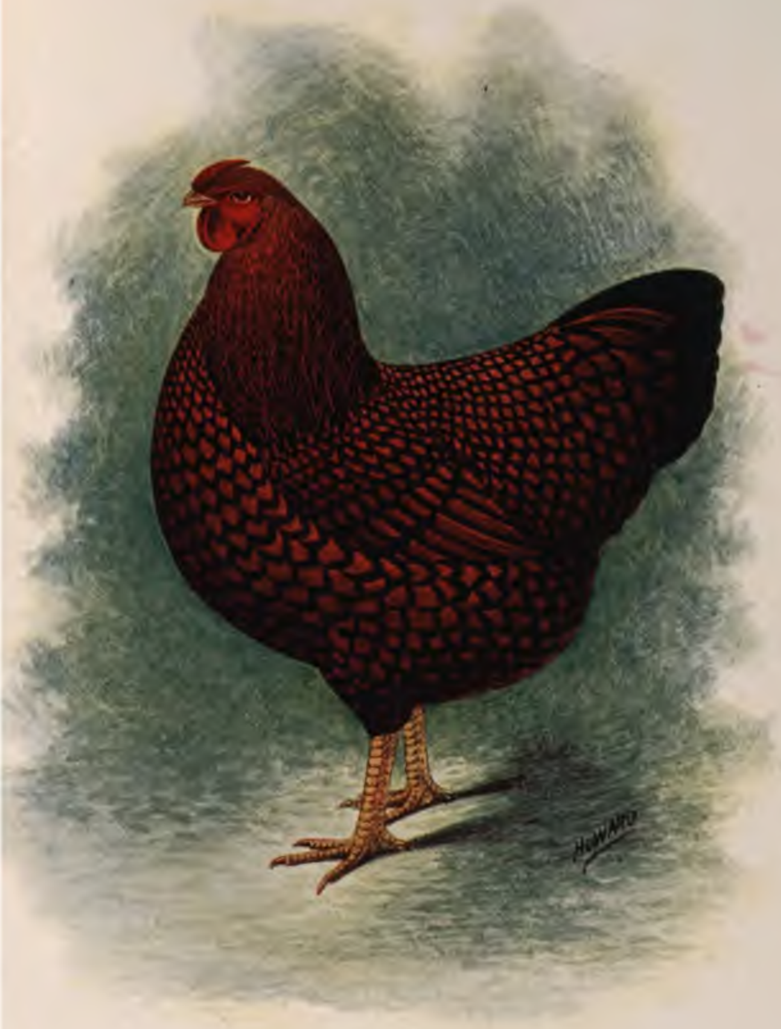
The Golden Wyandotte was the second variety of this breed that was brought before the public. The most successful attempt at its production was made by Joseph McKeen, of Omro, Wis., who first produced a fowl which he called "Winnebagoes," that being the name of his farm. These Winnebagoes were the result of crossing Rose-Combed Brown Leghorns, Pea-Combed Partridge Cochins, and some buff females, these latter the result of a Golden Sebright-Buff Cochin cross. The best males produced from the combination of these several breeds were mated with some American Sebright females. Thus was produced the foundation of one of the most valuable strains—possibly the most valuable.

Some breeders, aiming for the same results, united the blood of the Golden Spangled Hamburg and the Partridge Cochin and crossed this product with the American Sebright. None of these crosses were as successful as those made by Mr. McKeen; but, as with the Silver-Laced Wyandotte, the careful selection of the best and their proper union gave the start of what has proved to be a valuable addition to the Wyandotte family, which is now so highly respected the world over.

Here again we have the double Asiatic cross of the Partridge and Buff Cochin with the Sebright Bantam. In this instance the Golden Sebright was crossed with the Buff Cochin and the product united with the rich black-red colors of the Partridge Cochin and Brown Leg-



GOLDEN LACED WYANDOTTE MALE.



GOLDEN LACED WYANDOTTE FEMALE.

horn. The rich-colored males from this combination of blood were bred to selected females of the American Sebright breed (now Silver-Laced Wyandottes). Almost the same identical combination of blood produced the Silver. It originated from the silvery white of the Dark Brahma and Silver Sebright, as mentioned before, while the top cross for the Golden came from the Golden Sebright and the black-red colors of the Brown Leghorn-Partridge Cochin union. Great patience and care were necessary for the completion of this variety, not so much to insure good Wyandotte form (this came as naturally to them as to the Silvers), but to establish the true golden-bay color to conform to the white of the Silver and at the same time gain the deep rich top color of the Partridge Cochin for the male.

THE COLOR OF THE GOLDEN.

The influence of the buff color of the females employed for the top cross, also the white color of the American Sebright females, was a very pale shade of golden bay for the males and yellow centers for the females. This color has been improved to the extent that we now have a deep golden bay for the top color of males and yellow bay for the females and under portion of males. The tendency is toward a deeper and more brilliant color in both, and for a top color on males of almost as rich colors as that of the Partridge Cochin. Gradually these colors have been deepened until the present rich shades of the finer specimens are quite in contrast with the old-time yellow shades.

Our present Standard specifies that the color of the Golden male and female shall be the same as that of the Silver Wyandottes, except that "golden bay" should be substituted for "white." This substitution of golden bay for white falls short of describing the rich top color of the Golden-Laced male, which now rivals the Brown Leghorn in brilliancy of color and richness of striping. This bright rich color is not in accord with the Standard, which calls for a deep golden bay for top color. A golden bay is not a bright, nor is it a deep, red; it is simply a golden-tinted bay. Everyone is familiar with the bay color as applied to a horse, which is a red bay; but the color demanded for the Golden-Laced Wyandotte is golden bay; or, as described by some, a mixture of pure gold and red.

The striping of hackle and saddle plumage must be the same in the Golden as in the Silver—the same diamond center in saddle and the same open lacing on both male and female. All conditions of marking, lacing, and striping must be the same in both. It adds much to the beauty of the Goldens if the Sebright lacing is obtained. Many specimens are seen at the present time which have the very open center of rich golden bay edged about with metallic black that glistens, forming a most beautiful combination of colors.

The gradual changes from the narrow stripe, or center, to the open lacing have modified the methods of mating to such an extent that some adopt double matings to produce show specimens. It is claimed that, to insure good females, it is undesirable to use males having the open lacing on the breast. Such matings yield females having too much white. To secure good females, it is best to employ males having at least one-half black on the breast plumage and females having good open lacing. In some cases those very gay or open-laced specimens will produce solid white chicks.

For all ordinary purposes it is best to mate for medium centers, using females that have the larger portion of their plumage very open laced and males having rather dark breast plumage and good clear top color. It is much better to confine yards to one pair, trio, or pen rather than try to produce nicely marked stock from a male with bad top color. Depend upon this fact, that if the male has bad top color, the same will be found on his chicks as they grow up. Too many males having black edging on back and saddle plumage (a defect that has been bred into them for many years) are used. This black edging is not nearly so prevalent in the Golden as in the Silver Wyandotte. More attention has been paid to the former, and this has driven out the mossing in back plumage of females and given to the Golden a more even surface color. As a whole, the Goldens are much better in surface color than the Silvers. To succeed in improving the Silvers, good silvery males having clear silvery white top color, free from black edging, and saddle plumage having white centers must be employed; otherwise too many females will have mossing on the back.

TO PRODUCE THE GOLDEN COLOR.

In selecting a Golden Laced male for a producer, choose one having the golden bay color—not a reddish bay nor a chestnut color, but a golden shade of bay. Keep clear of light or yellow shading on breast and dark shadings on back or wings. By all means have good, clear hackle plumage, nicely striped with black and free from smut. Many are too deep a bay or red; some are as rich in color as a Partridge Cochin. This is not as the Standard reads. It calls for a golden bay; not even a rich golden bay is demanded.

The same conditions govern the Goldens as govern the Silvers. Very open-laced specimens will produce offspring which grades lighter in color than the parent birds. The medium-colored specimens will produce the medium shades; the very dark specimens will produce the darkest chicks. This makes it possible to mate the Goldens in the same manner as given above for the Silvers with about the same results. In all matings use only those specimens that have the true golden bay color laced with the rich, glossy black that glistens with a beetle-green sheen.

It is claimed that one of the very best plans for mating is to select a perfect male in form and color and place with him females, some of which are light and some dark in color, in order to gain the advantage of both shades in the one mating. Of one result there is the greatest assurance, namely, the loss of the proper color, unless the strictest attention is paid to its maintenance by using only such males as possess the true shade and the rich black lacing. In all matings the breast plumage of the male should be darker and heavier in lacing than the females. This applies to both the Silver and Golden varieties.

A very safe plan of mating is to select both males and females with the medium centers and mate them, year after year, until this line of breeding is established in the strain. Such matings will produce both sexes of fairly good quality and a greater percentage of good salable birds than may be expected from the other more extreme matings. All these matings may be used in both varieties; the more extreme mating to produce the light open-laced Sebright markings, the medium colors for the average quality of exhibition specimens usually seen.

THE WHITE WYANDOTTE.

The white variety of Wyandottes originated as sports from the Silver-Laced. It is claimed that some of them appeared as early as 1872. If this is true, those of that early date had not much of quality in their ancestors. Early writers speak of them as better in Wyandotte shape than the Silvers, and regard them as models for all varieties. Much of this distinction, it is presumed, was the outcome of applause arising from the pleasure of adding a new variety to the list of American fowls.

When it is considered that as late as 1883 the Silver-Laced Wyandottes gained only quality of sufficient amount to establish them as a Standard breed, what must they have been in 1872, at which time it is claimed that the white sports were produced? The statement is not questioned that they did produce both solid black chicks, also solid white ones, for this is known to be the fact. At the same time the quality of these self-colored sports was no better than the parent birds from which they came as sports. The strong-breed characteristics of the whites, when present, is the result of careful mating and the influence of Asiatic alliance.

We are informed that an exhibition Silver-Laced male of merit (from England) mated to some of the very best American-bred females has in the past two seasons produced some beautiful-shaped White Wyandottes. This continued production of white chicks from Silver-Laced Wyandottes has existed from the very incipiency of the breed to the present time. Such a large production of solid-white chicks throughout the period of twenty-eight years points to a reversionary, rather than to a sporting, condition. Or, in other words, it leads to the opinion that they "throw back" to white ancestry rather than sho a tendency to sport or produce albinos.

THEIR ORIGIN.

The credit of their origin is given to George W. Towle, of Truxto N. Y., and B. M. Briggs, of Wyandale, N. Y., both of whom di much for their advancement. If our information is correct, it wa not until 1885 that the White Wyandotte was brought prominentl before the public; and its admission to the Standard, in 1888, wa accomplished at the meeting of the American Poultry Associatio held at Indianapolis in that year. Prior to 1892 there had not bee produced any considerable number which attracted attention in qualit of shape or color. During the years intervening between 1878 an 1885 white chicks came too often from the Silver-Laced variety Their breeders considered it as positive proof of impurity in th breeding stock. Efforts were made to shield the fact until it becam known that they would be advanced as a true variety of the Wyandott family; then many willingly acknowledged the presence of the Silver Laced in their yards. Few varieties of fowls in this country have eve been as well managed as these have been. Both utility and exhibitio qualities have been fostered equally. The result is greatly in thei favor and makes them one of the strongest, if not the strongest, competitor of the Barred Plymouth Rock for public favor.

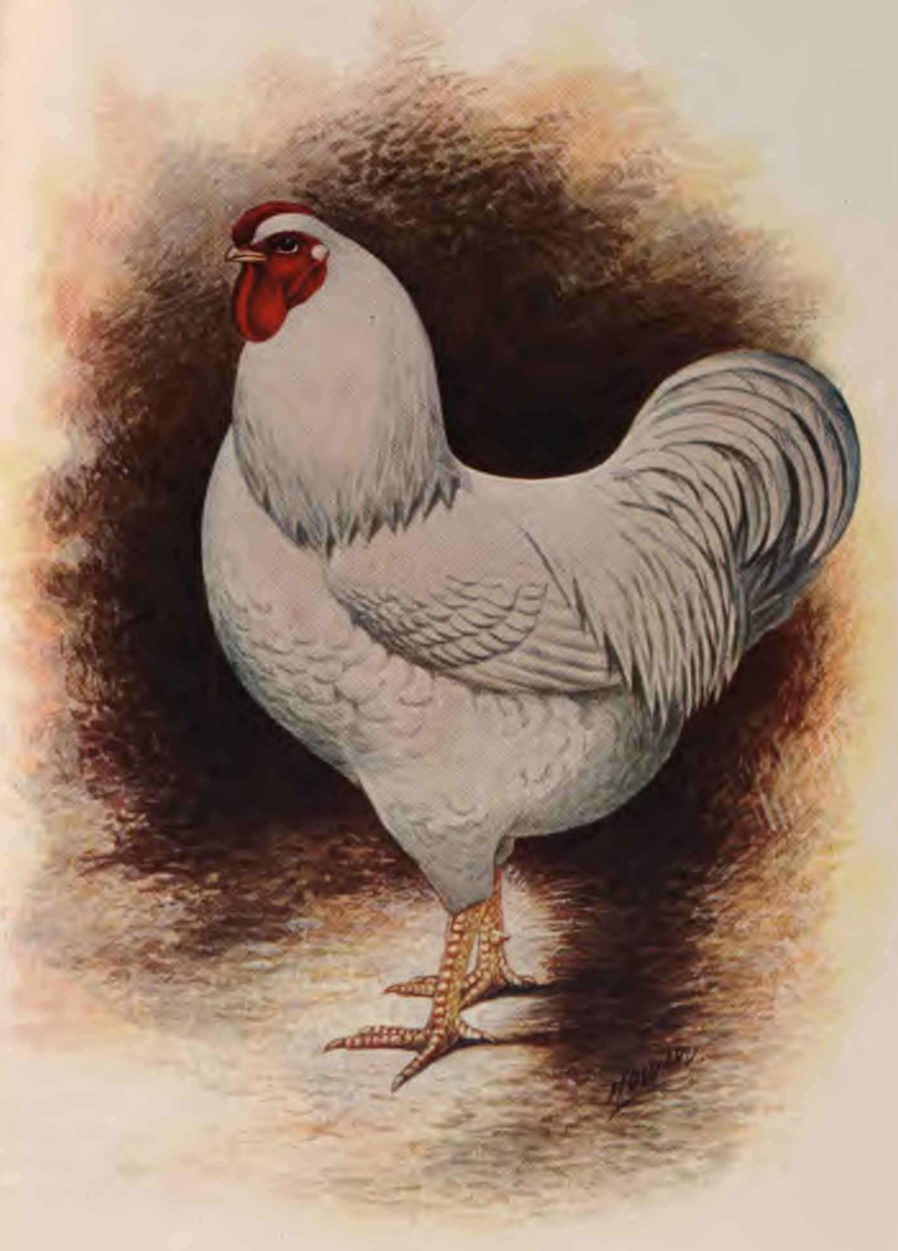
AN EXHIBITION FOWL.

In the history of American poultry exhibitions there has not bee recorded a more popular fowl than the White Wyandotte. It ha gained so fast in this direction as to call together the largest classes a our fall and winter shows. Large sums are continually subscribed b those who are interested in their welfare for special awards in thes classes, thus creating an unusual interest in them, and rendering them more and more popular. They have met with but one obstacle as they have gone forward, and that is the new Buff variety.

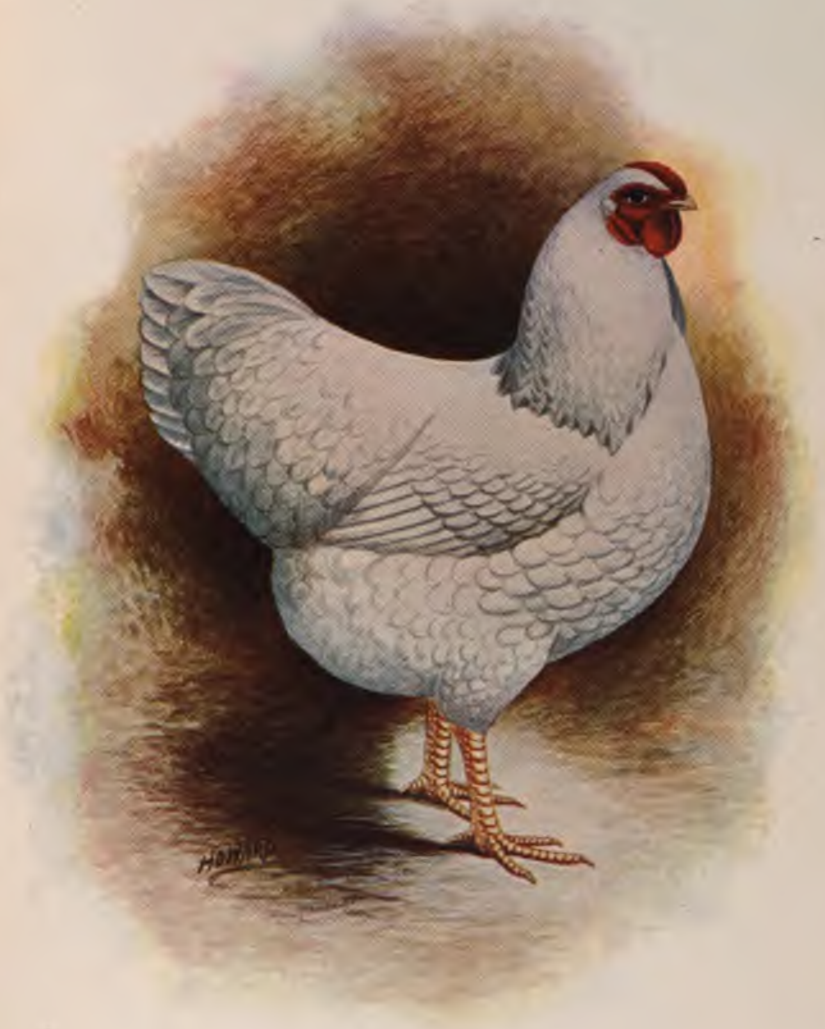
Great improvement has been made in their shape and color. Almost perfection of shape and immaculate plumage must be present with the specimen that now wins the honors. Medium quality has but little chance in the show pen in well-contested classes, and poor condition of feather is almost certain to bring defeat. No fowl is more beautiful or attractive than a pure-white one in prime condition of plumage. Feathers of such purity rest most gracefully upon the White Wyandotte.

UTILITY QUALITIES.

The White Wyandotte is without question the model for market poultry. The compact form and full plump breast give the desired



WHITE WYANDOTTE MALE.



WHITE WYANDOTTE FEMALE.

broiler as well as the most perfect roaster. The color of the meat and skin is of that attractive yellow so much in demand in our markets. It has the combination of attractive shape and color, and the white plumage removes all chance of prejudice so often advanced against dark pin feathers, thus giving it three very important advantages for sale as market poultry.

There is but one drawback to contend with in pushing the White Wyandotte for a more advanced position as a utility fowl, namely, its inclination to produce eggs that average undersize when compared with the size of the fowl. In the markets that bring the highest prices for eggs the larger in size are the most valued. The White Wyandottes lay quite as many eggs as are laid by the Plymouth Rocks or by other varieties of Wyandottes, and their eggs are of good color and firm in shell. They are quite as economically kept as any breed, with an inclination to accumulate fat with age, which counts in their favor when sold for market fowls.

THE QUESTION OF SIZE.

There seems to be a rule governing form which confines its greatest perfection within certain sizes. Undersize in the Bantam deprives it of the highest form. As oversize in the Brahma detracts from its grace of contour, this same influence works against an effort to advance the size of the White Wyandotte beyond the limit of the rule governing the individual form. Bad shape has come with these mistaken efforts, and this should be a warning against a continuance. It is well to guide them in size within that limit line which gives assurance of a maintenance of the best breed characteristics, but not to go beyond. Hold to their beautiful form by all means; that is their real attractiveness and value. Do not try to gain size, which can not prove of value as against the loss of form.

We have the greater size in our Asiatic fowls. A large Wyandotte can not excel a larger Brahma as a meat fowl, while as a Wyandotte of proper proportions it may meet with greater favor. The White Wyandotte, as it should be, has as much size as is consistent with its position as a general-utility fowl. The grace of form and exhibition qualities can be maintained within these conditions as to size. Both the Brahma and the White Wyandotte can be improved within the limits of the rule which controls form as against size, and both may be injured in an effort to go beyond these limits.

HOW TO MATE THEM.

To produce White Wyandottes for exhibition, we must look simply for perfection of form and purity of color, with good head points. The male should be a model of Wyandotte shape, clothed in absolutely white plumage that is true and pure in color to the skin, including the quills; head and comb in strict conformity with Standard demands. The females should be superb in all sections in both shape and color. No hope of success can be placed on inferior breeding stock when the aim is to produce winners of the highest character.

The following special points of value may be considered to advantage: Do not use White Wyandotte females that have narrow, contracted main tail feathers to produce winners, although this is permissible with the Plymouth Rock. Have the well-spread tail on all Wyandotte females used for breeding exhibition stock. Such matings are of the very highest character, and, while they are difficult to secure, they are almost certain to give returns that will fully repay for the necessary trouble and expense.

When such quality is not obtainable, the following methods involved in building up a strain should be pursued: Select the very best at hand year after year until some are produced that are equal to the best, and from these hope may be gained for a reputation in the showroom. In any class where the competition is as keen as in the White Wyandotte specimens are always met in competition from the yards of the most successful producers, thus making it of the utmost importance to select as breeding stock specimens of the highest merit for breeding winners.

Other features of great importance are purity of color of ear lobes, beak, and shanks, including the feet. White ear lobes and shanks other than yellow are disqualifications not removable. The presence of either is prominent and should be avoided. It is equally important that there should not be the slightest trace of feathers or down upon the shanks or between the toes of any breeding stock. The absolute avoidance of this will alone assure against its future appearance, and it should be guarded against with the greatest care.

WHITE AS A COLOR.

Pure white as a color of plumage of fowls is quite as difficult to maintain as any other color or parti-colors. A cream or yellow or black tinge must continually be contended against; any one or all of these colors may crop out when least expected. The most perfect white shade is apt to be sprinkled with black, and the yellow undercolor must be fought against unceasingly. The surest means of obliterating these undesirable tinges is by the selection of males that have absolutely white plumage, including undercolor and the quills, or shafts, of the feathers.

Many of the most attractive and vigorous male White Wyandottes show a tendency toward the yellowish tinge in plumage, but their other attractive qualities are inducements to use them as breeding specimens, the result often being disappointing. It is better to discard them than to run the risk of infusing the taint of yellow into the flock. Equal care should be given to the selection of white females.

THE BLACK WYANDOTTE.

The Black Wyandotte originated in the yards of F. M. Clements, jr., of Mechanicsburg, Ohio, in 1885. It came as a sport from the Silver Wyandottes. The first Black Wyandottes possessed by him were a few black pullets, which he mated with a male having black body plumage and a silver hackle. From this start he built up a true breeding strain of blacks, which are credited with being the foundation of those we now have. The care bestowed upon them by Mr. Clements brought the Black Wyandotte to a condition of good reproducing power, and they could be depended upon to produce solid black plumage with good dark undercolor, red ear lobes, dark shanks, and correct style and shape of comb.

Good size was also present in these early Black Wyandottes, and the color was improved by Mr. Clements into a rich glossy black, giving them a good start in the right direction. Breeders who thought it best to have the same yellow shanks and feet as other Wyandottes did much to injure this variety for several years. It was finally settled that it was impossible to have the yellow shanks and feet with good black surface and undercolor. This information, gained by bitter experience, resulted in establishing the original dark color for beak, shanks, and feet.

It is quite unnatural for black fowls (or birds of any kind) to have other than dark or black legs and feet. When any other color is present, it is an unnatural condition, brought about by artificial methods, which demands undue care in their reproduction to prevent undesirable colors coming into the plumage. Careful consideration of these facts guided the framing of the Standard description for this new variety, which is: Black shaded with yellow as the color for beak, shanks, and feet, at the same time demanding that the bottom of feet shall be yellow, and making the absence of this yellow a disqualification.

Time has proved the possibility of producing both good shape and color under these Standard requirements. Within the last few years some beautiful-colored specimens of excellent Wyandotte qualities have been shown, some of them fully the equal of any of the other varieties. But American prejudice against black fowls has barred the way of the Black Wyandottes to much-deserved popularity. The same influence has counted against all other black fowls, many of which have qualities that rival any or all other breeds. Much of this feeling has been removed within the last ten years, and it may be that a better appreciation is in the future for all fowls of this color.

MATING FOR COLOR.

The position filled by the Black Wyandotte is quite that of "the fanciers' fowl." While it is fully the equal of the other varieties in utility requirements, it has never been urged with the same vigor for public popularity. It can hardly be expected that it will gain equal prominence with the Whites, handicapped as it is with a less popular color. At the same time persistent effort in its behalf would make it equally popular with the Langshans or Minorcas.

In all matings of Black Wyandottes better shape and breed qualities of all kinds should be present, if possible, than can be usually obtained in other varieties. It is quite necessary to have the most perfect shape, else they are of but little value. It would be better not to attempt their production for profit unless most excellent specimens can be had to breed from. The fact that they are a "fancier's fowl" means that all that are not fully equal to Standard requirements are to be relegated as table poultry.

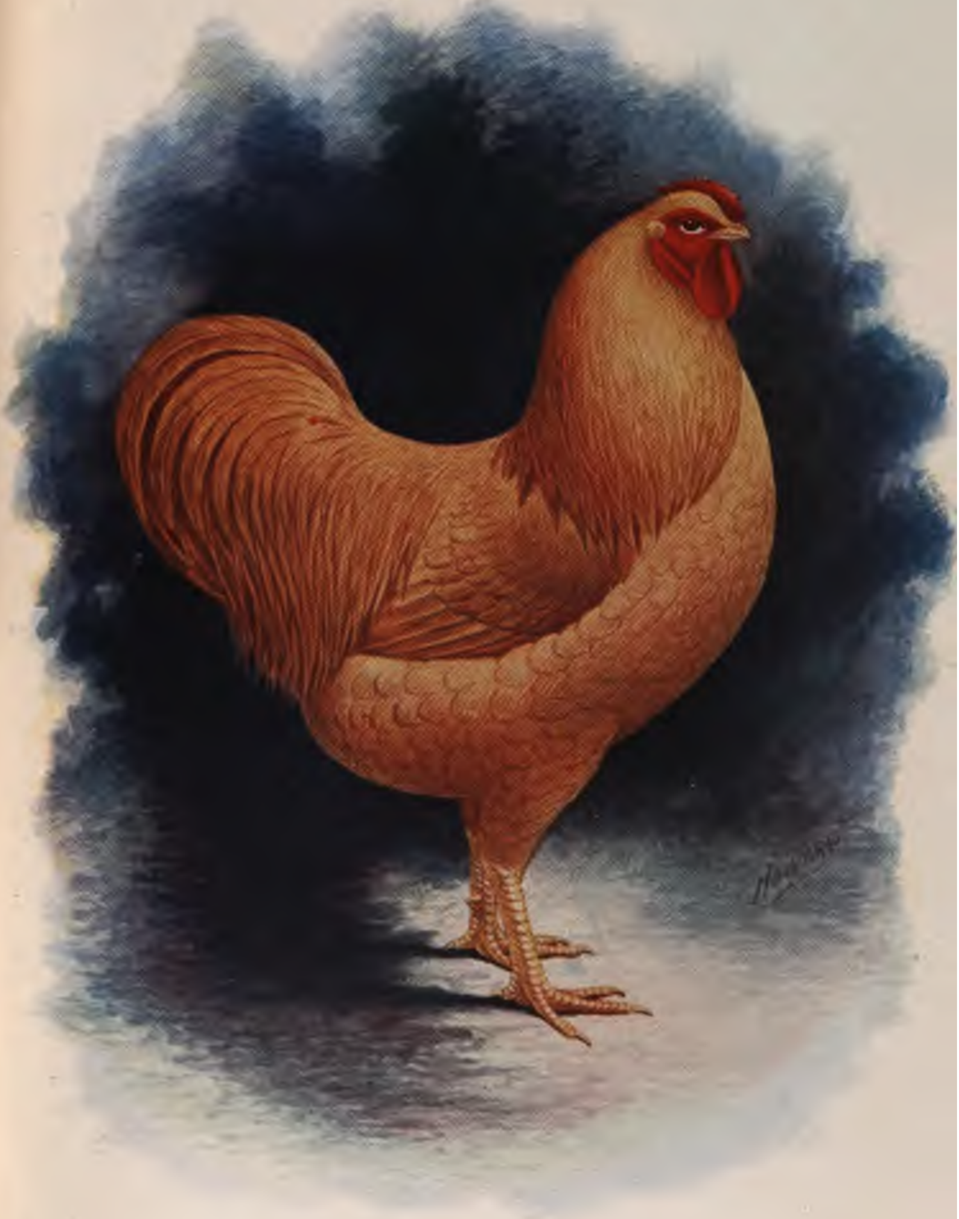
For best results mate the richest-colored male with the purest black females that have but little gloss, or sheen, in their plumage. They will produce the better-colored males; while the very rich-colored females, glistening with the metallic sheen, will produce the best-colored pullets if mated to this same rich-colored male. Many of the cockerels from these rich-colored females will have an excess of color, which disqualifies them. Those that have the proper finish, or shade of color, will be rich and glossy in the extreme, but the more somber-colored females must be depended upon for the exhibition males.

Always select good, dark undercolor and dark legs, as they give assurance of an established color in the blood, while the light, or willow-colored, legs and the pale undercolor bespeak the influence of the lighter shade of the ancestors, the influence of which is detrimental. Good, strong black, through and through, including undercolor and quills of feathers, is the best assurance against white in the offspring. All these features of color must be closely watched if we hope to succeed in producing Black Wyandottes of highest quality.

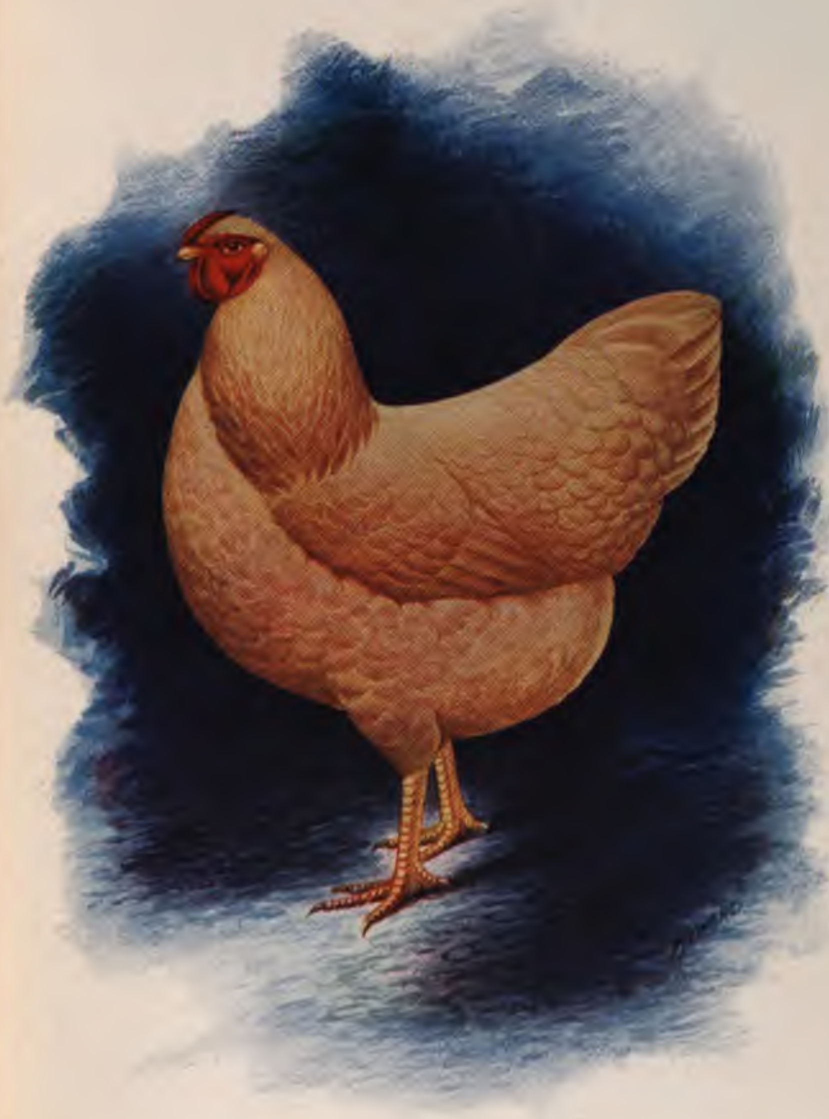
THE BUFF WYANDOTTE.

There has been considerable contention about the question of priority of production of this variety. From all information at hand the indications are in favor of George H. Brackenbury, of Auburn, N. Y., as the pioneer, with Dr. Aldridge and R. G. Buffington, of Fall River, Mass., close seconds. These two distinct lines were produced under different methods. One was formed from Wyandotte-Buff Cochin cross; the other came through the Rhode Island Red-Wyandotte cross. Other strains came from different crosses—all aiming for the same end, but each using a separate rule of procedure.

The New York strain of Buff Wyandottes was produced from the union of Wyandotte males and Buff Cochin females. This strain was largely Cochin in blood and form, in color of wings and tail, and in surface color, and is the best of any of the early productions. The



BUFF WYANDOTTE MALE.



BUFF WYANDOTTE FEMALE.

amalgamation of this and the other strains improved them all and gave them the start toward their present perfection of form and color. The Buff Wyandotte is nearer related to the Asiatic family than any of the older Wyandotte varieties, as the latter were crossed again upon the Cochin to gain the desired color. The original Fall River strain (so called) came as the result of an unguided cross of Silver-Laced Wyandottes and Rhode Island Reds. The Rhode Island Red, a crossbred farm fowl, in union with the Wyandottes, which were placed among the Reds to advance their value as market poultry, gave a product that was molded into the proper form and color for the Buff Wyandotte. The Rhode Island Red was largely descended from the early Asiatics, and thus gave renewed strength to these later blood lines, and adding to, rather than detracting from, the tendency toward Asiatic form. This strain was badly handicapped with black in tail and wings, an inheritance from both ancestors. The union of these two strains gave strength of character and better color. The original formation of each seemed to blend with the other, giving little resistance to the hand that was guiding them to a more perfect condition.

The third strain came from the union of buff-laced females of very little lacing (which came as sports from the Golden-Laced variety) with a male from the Fall River strain. These three lines of breeding have furnished the foundation of this most excellent variety.

While in quest of better color the shape and size have been neglected to a considerable extent. The fact that there are many specimens of good form and color that are oversize is positive proof that size, shape, and color can all be maintained without injury to either characteristic. It seems to be a necessity to breed closely in line to establish and maintain good color and breed characteristics. While this is true, it does not establish the necessity of selecting inferior size and shape as one of the requirements. Shape must be considered at all times as of first importance; size should be of almost equal consideration with color; and never should color stand paramount to both.

SELECTING FOR BREEDING.

The proper selection of Buff Wyandottes to be used for producing exhibition specimens of merit is a difficult task. First of all, the possibility of perpetuating disqualifications—such as white earlobes, bad combs, and poor-colored shanks and feet—is to be guarded against. Eyes should be prominently bright and clear and of a good bay color; shanks and feet a good yellow color, very smooth and free from any semblance of either feathers or down; comb and all head points should be almost perfection in form and texture.

It is worse than folly to hope to obtain good Wyandotte shape from ill-formed parents. Discard as breeders all faulty specimens and continue to use only the best, for in this way only can excellence be obtained. Good size and vigor are of the greatest importance. Without these, little prospect of advancement can be had. It is hardly necessary to again mention the fact that all varieties must have the same breed shape. This is doubly true of the solid-colored varieties. The one solid color and the shape are the only necessities for perfection; but the demand for excellence is by far more rigid against solid color than parti-colored fowls.

Equally as much care must be given to the selection of the females as to the males. Each must have the greatest amount of quality obtainable. Good form, good size, and constitutional vigor are quite valuable in the female as well as in the male. It is the female that casts the greater influence over size and form. Good color is an absolute necessity in the male, as he imparts the greater influence over color. All these features should have careful consideration when selecting breeding stock.

TO PRODUCE BUFF COLOR.

It is safe to presume that there is no color of a fowl so hard to produce and maintain as the buff color. There is but one true buff color. Lemon shade is not buff; a red or cinnamon color is not buff; neither is a reddish brown a buff; the true shade is "golden buff." The term used for Standard buff color is "one even shade of rich, golden buff, free from shafting or mealy appearance." This is simply a true rich buff of golden hue. Many produce a thin, uneven shade of lemon yellow and call it buff, while others favor a deep orange buff or cinnamon color and present it as the true shade for buff. These are not the true golden buff.

The proper shade of buff, many say, is a mixture of yellow, red, and white, or a combination of yellow and pink. This is absolutely true when mixing colors on the palette, but many years of experience have proved that it is far more difficult to control the color of plumage than to properly mix the paints. It is easy to say: Keep out the black or drive out the white. But it appears when least expected. Buff is a made color—it is not a natural color—and there is but one rule for its certain production, and that is the union of the truest color possible to obtain, year after year, until a strain is established that will breed true to color.

A continued system of inbreeding for good, sound plumage color has many drawbacks. Reduction of size and loss of form are the most serious. To obviate this, new blood must be introduced from time to time, the admission of which brings with it more or less disturbance of color lines, causing a continual oscillation between good color and good form. One of the principal assurances of good color is the proper undercolor and color of shafting or quills—all of which should be buff to the skin and of a shade somewhat lighter than surface color. Whatever the shade or buff may be, let it be even and true all over and through and through.

It is not advisable to mate light and dark specimens; the result will be a mealiness in plumage of chicks. The very best selection is of females having the true golden buff, and of males whose breast color is one or two shades darker than the females, all to be very even in color and free from any shade other than the buff. Black and white should be avoided. If white is present, it is quite likely to show in undercolor and on wings of the offspring. Black will show in the wings and tail. Both are equally objectionable.

PENCILED WYANDOTTES.

Having forced themselves into distinguishing classes, the Silver and Golden Wyandottes are known as the Silver-Laced and Golden-Laced varieties, from the fact that their plumage has an edging of black about each feather which is known as lacing. Two varieties are now demanding recognition that have penciled plumage.

If proper uniformity in the Standard is to be maintained the line should be drawn between the laced and penciled varieties. All laced varieties should be grouped under one head and the penciled varieties under another head. This would form a guide for uniformity in the Standard, and cover all varieties that now or hereafter seek admission. We have the buff laced, as well as others yet unnamed, that are gaining in quality each year. These should have provision made for them in advance, so that a uniformity of standard may be observed in their construction.

GOLDEN-PENCILED, OR PARTRIDGE, WYANDOTTE.

This, the first penciled Wyandotte, is the result of crosses made in 1889 by George H. Brackenbury, of Auburn, N. Y., who used a Golden Wyandotte male and a Pea-Combed Partridge Cochin female for his start. About the same time Joseph McKeen, of Omro, Wis., and his coworker, E. O. Thiem, began working for the same result, using Golden Wyandotte and Partridge Cochin crosses. These three men should have the credit of the origin of the Golden-Penciled Wyandotte. Future results only will prove who are the most competent in the advancement of this strain. Every time a new variety is produced contention arises as to whom the credit of their origin should be accorded. If better records of time and matings were kept they would be proof in the case.

This new Wyandotte has, or should have, the same color and markings in all sections as the Partridge Cochin fowl. In size, shape, and comb it must conform to the Standard demands for all Wyandottes. It should be a Wyandotte of perfect form, clothed in the beautiful plumage of the Partridge Cochin.

The production of good color and markings for this new variety is not an easy task. The color demanded for the Partridge Cochin makes it almost impossible to produce good exhibition males and females from the same matings. As the new Wyandotte advances in quality the same difficulties will confront it that confronted the Cochin, and the same methods must be applied as are now used to produce the exhibition Cochin, unless some of those who are engaged in the improvement of the Penciled Wyandotte devise a plan of mating that will produce males and females of equal quality from the single mating. Until the Standard for this variety is formed and accepted it can be considered only under the description published by the originators.

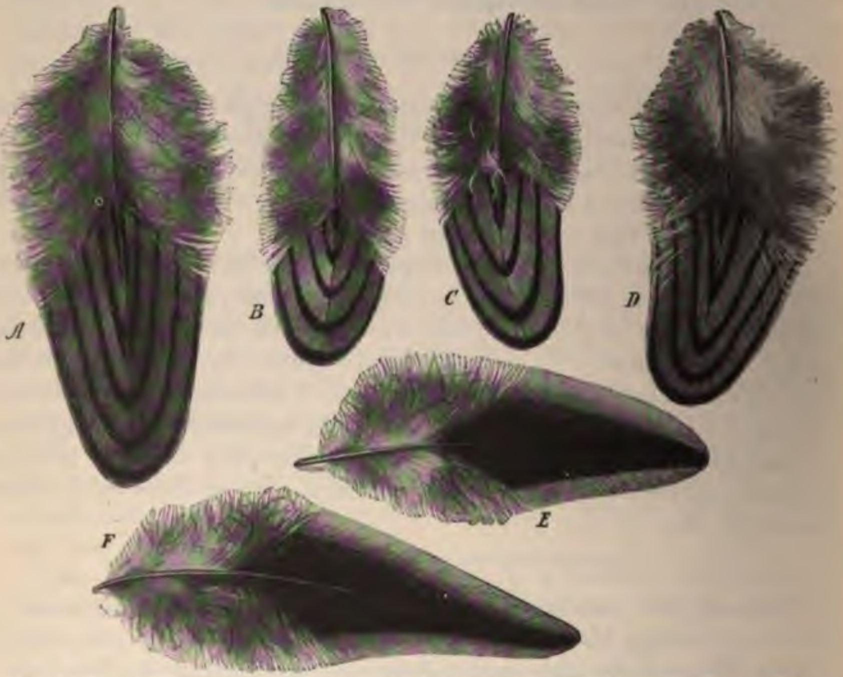
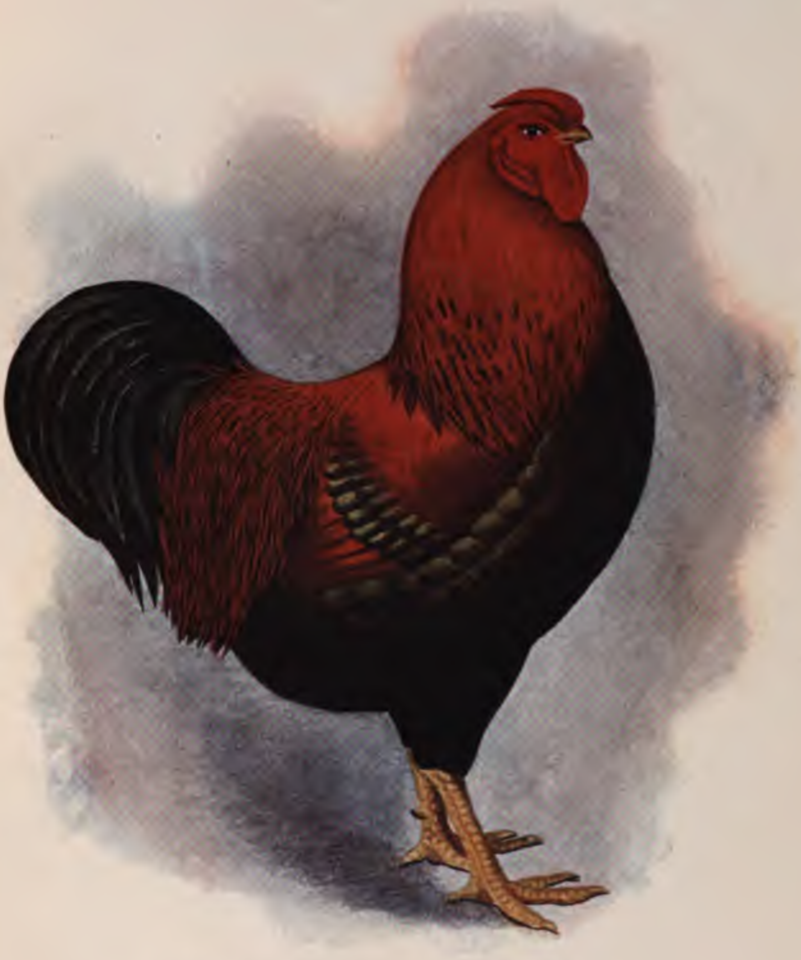


Fig. 3.—Feathers of Partridge Wyandotte. *A*, fluff, female; *B*, breast, female; *C*, wing, female; *D*, cape, female; *E*, hackle, female; *F*, hackle, male.

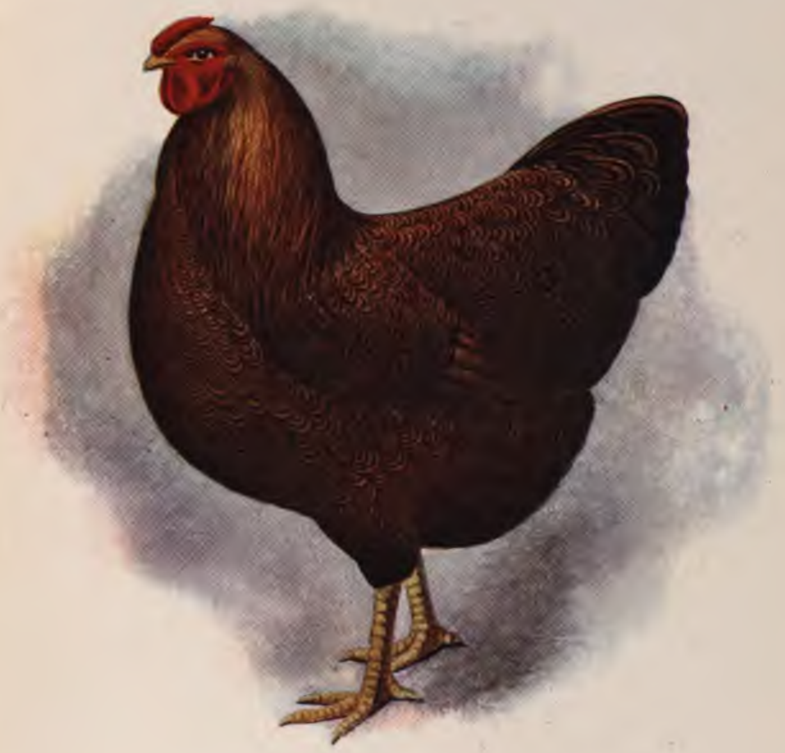
Note.—Since the above was written this variety of Wyandottes has been admitted to the Standard under the name of Partridge Wyandotte. This was done at the meeting of the American Poultry Association, at Chicago, on January 23, 1901. The Standard description of the variety demands that they have the true Wyandotte shape, while the color is the same as for Partridge Cochins.

SILVER-PENCILED WYANDOTTE.

This variety also originated with Mr. Brackenbury. It is the result of a Wyandotte-Dark Brahma cross. They are true Wyandottes, and



GOLDEN PENCILED WYANDOTTE MALE.



GOLDEN PENCILED WYANDOTTE FEMALE.

have the color and markings of the Dark Brahma; the top color of the male, silvery white; hackle and saddle striped with black; breast and undercolor of body a beautiful rich glossy black; beak and shanks yellow. The female is a beautiful clear gray, nicely penciled with the darker color. This variety promises to be one of our most beautiful fowls. The attractiveness of color and markings add greatly to the admirable Wyandotte form.

It is to be hoped that the bad color of the back, so prevalent in the Silver-Laced, will not be present with this new variety, as their beauty depends so largely upon clearness of plumage, which can be easily marred by the presence of the reddish brown cast too often seen in the Silver-Laced males. The efforts of their champions to breed both these penciled varieties with yellow shanks will no doubt retard them somewhat, as it did the blacks. They should at least have as much latitude for color as the Cochin and Brahma, from which they are derived.

Both the Silver-Penciled and the Golden-Penciled are clear in color and beautifully penciled. In the former the black and white are well defined. The striping of hackle and saddle in each is very prominent and true, while the penciling and color of some of the Golden females are almost the equal of that of the Partridge Cochin.

THE BUFF-LACED WYANDOTTE.

The Buff-Laced variety has the true buff center and the white lacing, or edging, on plumage, exactly like the Buff-Laced Polish. They came as the result of some of the many crosses made to establish other varieties. In order that the readers may know more of the matings and crosses of this variety, there are given below the exact words of one who helped in originating it: "From a combination of blood, made from a Golden Wyandotte-Buff Cochin cross, mated to White Wyandotte-Buff Cochin cross-breds, a cockerel sported having the two colors of the Buff-Laced birds. His breast, fluff, and wing bars were laced with white as perfectly as any laced Wyandotte male I ever saw. His wing bows and all the centers of his entire plumage were of the same deep red-bay color. The white lacing was as white as is seen in any white variety. This buff-laced male was bred to a pen of the blue-laced females, to lighten the color of the lacing. From this was obtained one beautiful pullet from which was developed this variety." From these many crosses other colors also made their appearance, as mentioned above; for instance, the blue-laced females, which are sometimes called violet laced. Other crosses produced the Buff-Laced variety, as follows: By crossing Golden-Laced and White Wyandottes, and remating the best results of these matings, the foundation of one of the most successful strains was laid. Another came as a by-product from an attempt to produce blue lacing upon a golden colored Wyandotte. Some specimens came with the golden centers and white lacing, giving the foundation for one of the best-known strains of the world. All these many crosses brought the same final result, namely, showing the possibilities of manipulating the shades of color and their numerous markings.

A reasonably perfect specimen of this variety is a most beautiful fowl. The center of the plumage should be a rich golden buff nicely laced about with white. Thus far but a limited number has been produced which has the desirable qualities.

THE UNNAMED VARIETIES OF WYANDOTTES.

The most prominent of the unnamed varieties is a fowl of a Wyandotte shape having the color and marking of the Light Brahma. It is known as the Columbia Wyandotte. Its style of color and marking has not so far attracted public attention. Great improvement has been made in the variety within the last two years, and its general make-up in form and color could be directed into a most beautiful specimen of the Wyandotte family. Evidently these fowls originated from a White Wyandotte-Light Brahma cross. The rich yellow of beak and shanks will come very naturally to them, and the striping of hackle, when it becomes equal to the same section of the highly colored Brahma, will be of attractive contrast with their white bodies.

The Violette, or Violet-Laced Wyandotte, is of the same shade and color as the Golden-Laced, except that it has the blue instead of the black. When this lacing is of a rich violet blue the coloring is attractive. This variety was produced by crossing and recrossing the Wyandotte varieties and selecting the best. Much trouble is always experienced in attempting to hold these colors true. In fact they are Wyandottes of a much too delicate color formation to be other than an extremely fancy fowl.

Cuckoo Wyandotte.—In England they have a Wyandotte of the same color as our Barred Plymouth Rocks which they call Cuckoo Wyandottes. So far they have gained but little prominence in their own country, and none have been seen in this excepting those often shown in our American Dominique classes. They favor our Wyandottes too much both in form and color. In addition to this, the long flowing tail of the properly constructed Dominique is, in too many cases, misplaced by the Wyandotte form of tail.

Some other colors.—If the Pile-colored Wyandotte could be produced in as delicate tints as the Pile Game, it would add another variety to the truly fancy Wyandotte list. Among the newest is a fowl of Wyandotte shape, with broken black-and-white plumage, like the Ancora or Houdan. This fowl is presumed to be related to the Erminetts, a fowl of much the same character that has been bred in New England for years.

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BULLETIN No. 32. (B. A. I. 171.)

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY.

THE TUBERCULIN TEST OF IMPORTED CATTLE.

BY

D. E. SALMON, D. V. M.,
CHIEF OF BUREAU OF ANIMAL INDUSTRY.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1901.

LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Animal Industry,
Washington, D. C., September 3, 1901.

Sir: I have the honor to transmit herewith a manuscript on "The tuberculin test of imported cattle," and recommend its publication as Bulletin No. 32 of this Bureau.

The necessity of guarding our food-producing animals from the ravages of contagious diseases has been recognized by Congress at various times, but principally in the enactment of the statutes for the establishment of this Bureau and for the prohibition of the importation of animals affected with any disease dangerous to the flocks and herds of this country. The regulations which have been issued in accordance with these statutes require that the tuberculin test shall be applied to all cattle over six months old which are imported into the United States. This test, being in the nature of a restriction upon the importation of cattle, has been the subject of more or less unfavorable comment on the part of importers and their friends, and efforts have been made to secure its abandonment. Under these circumstances it is deemed advisable to present the reasons for requiring the tuberculin test and the importance of this measure as a means for protecting the interests of the farmers of this country.

Respectfully,

D. E. Salmon,
Chief of Bureau.

Hon. James Wilson,
Secretary.

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THE TUBERCULIN TEST OF IMPORTED CATTLE.

PROVISIONS OF THE REGULATIONS.

The regulations of the United States Department of Agriculture require that "All cattle over 6 months old imported into the United States after March 1, 1900, which are subject to quarantine and except as otherwise provided shall be tested with tuberculin." With importations from Canada "A certificate for cattle over 6 months old for breeding purposes and for milch cows must also show that they have been submitted to the tuberculin test and found free from tuberculosis, giving the date of testing, with the chart of reaction, and a description of the cattle with age and markings."

The effect of these regulations is that all cattle over 6 months old imported for breeding purposes or for milk production must be tested with tuberculin, and, if found by this test to be affected with tuberculosis, they must be excluded under the act of August 30, 1890, which prohibits the importation of animals " which are diseased or infected with any disease, or which shall have been exposed to such infection within sixty days next before their exportation."

The tuberculin test, being in the nature of a restriction upon the importation of cattle, has been the subject of more or less unfavorable comment on the part of importers and their friends, and efforts have been made to secure its abandonment. Under these circumstances it is deemed advisable to present the reasons for requiring the tuberculin test and the importance of this measure as a means for protecting the interests of the farmers of this country.

NECESSITY OF GUARDING AGAINST DISEASE.

The necessity of guarding our food-producing animals from the ravages of contagious diseases has been recognized by Congress at various times, but principally in the enactment of the statutes for the establishment of the Bureau of Animal Industry and prohibiting the importation of animals affected with any disease dangerous to the flocks and herds of this country. The farmers of the United States are especially fortunate in having a larger investment in farm animals than can be found in any other country, and in the fact that these animals are, on the whole, remarkably free from disease. Several of the most disastrous plagues of the Old World, such as rinderpest, foot-and-mouth disease, and sheep-pox, have not gained a lodgment in our territory, while most other forms of contagion are either comparatively rare or under control.

In 1884, when the Bureau of Animal Industry was established, our cattle industry was menaced by the existence of contagious pleuro-pneumonia in several States. That danger was completely removed by the prompt and thorough measures which resulted in the complete eradication of the contagion. This, however, was not accomplished without much bitter opposition and the most determined though misguided efforts to embarrass the work and prevent its success. The wisdom of the policy of eradication has since been amply established, not only by stopping the losses from the disease, but much more by the freedom from panics, quarantines, and other restrictions on account of it and the improved reputation of our exports of cattle and meats which followed.

DANGER FROM TUBERCULOSIS.

At the present time the people of nearly every stock-raising country are alarmed over the prevalence of tuberculosis among their cattle. The disease is recognized as the most widespread, most insidious, and most disastrous of any of the diseases affecting cattle. It is a strictly contagious disease which may spread to nearly every animal in a herd, and not to cattle only, but to swine and most other species of animals. The weight of medical authority favors the conclusion that it may be communicated from animals to man with fatal results. The British Congress on Tuberculosis held, notwithstanding Dr. Koch's view to the contrary, that "in the opinion of this congress medical health officers should use the powers at their disposal and relax no effort to prevent the spread of tuberculosis by milk and meat." This being the case and there being in existence a law prohibiting the importation of diseased or exposed animals, there is every reason why this law should be applied to tuberculosis as well as to other communicable diseases.

GREAT LOSS TO FARMERS CAUSED BY TUBERCULOSIS.

There are other reasons at this time why the spread of tuberculosis should be controlled so far as possible. Some of the States and various municipalities are making tuberculin tests and slaughtering the cattle which they find diseased. This causes considerable loss, inconvenience, and hardship, which fall principally upon farmers. The farmers for half of some lots having been found diseased. The diseased animals in most cases were in good condition of flesh, appeared healthy, and would deceive anyone unless a tuberculin test were made. When we have such a test, remarkable for its accuracy and reliability, there is no good reason why speculators should be allowed to bring in these diseased cattle, which are not wanted in other countries, and scatter them among the breeding herds and dairies of the United States to communicate disease and sooner or later to bring about the destruction of the herd with the heavy loss which it entails. Common honesty should lead those who sell breeding stock to our farmers to take reasonable precautions to insure the healthfulness of the stock which they deliver; but what should be said of the persons who knowingly import and sell cattle affected with a communicable disease like tuberculosis, which may not only destroy their patron's herd, but possibly infect some member of his family as well? The farmers of the United States are entitled to protection from such dangers, and wherever laws exist for this purpose they should be enforced rigidly and impartially.

TUBERCULOSIS A MENACE TO OUR EXPORT TRADE.

Moreover, many of the countries of the world are now adopting measures for suppressing tuberculosis among their native animals and for excluding tuberculous animals from their territory. The United States has already a great export trade in animals and animal products, and our people are endeavoring to increase this trade by adding to it the sale of purebred cattle for improving the herds of South America, Mexico, and perhaps of South Africa. If the proportion of animals affected with tuberculosis in our exported cattle should at any time be found to be increasing we must look for further restrictions and prohibitions upon both our animals and meats. Fortunately our meat-producing animals are to-day the freest from tuberculosis of any highly bred stock which enters the markets of the world; but how long will this continue to be true if we encourage the importation of breeding stock of which 20, 40, or even 60 per cent is diseased when it enters our herds?

Some of the countries to which we are looking as markets for our purebred stock already require that cattle shall pass the tuberculin test before they are admitted. If we enter these markets our cattle must not only be free from tuberculosis when they leave the farm, but also when they arrive in the foreign country. In other words, they must not be infected when they leave home or they will be liable to react by the time they are placed on sale. Cattle which have been for any length of time in a tuberculous herd are liable to have the infection within them ready to develop at any time, and particularly during the exhaustion and exposure incident to an ocean voyage. We should not expect to build up a reputation for our cattle unless we send healthy animals from healthy herds. Should we not, therefore, adopt the measures which are most essential to secure healthy herds in this country?

TUBERCULIN TEST NECESSARY TO DISCOVER TUBERCULOSIS.

These considerations, the weight of which can not be contested, led to the inclusion of tuberculosis among the diseases for which cattle should be prohibited entry into the United States. But tuberculosis is a disease of a chronic nature which often exists in an animal without causing any symptoms that would lead to its detection. With the animals brought to this country for breeding purposes not one-fiftieth of the tuberculous individuals would be detected without the tuberculin test, and yet many of these are quite badly affected and capable of spreading the disease. Consequently the tuberculin test has been adopted as the only means of guarding against the introduction of tuberculosis with imported cattle.

PROTECTION OF HONEST IMPORTERS.

As it was soon apparent that the unofficial tests made abroad were unsatisfactory, and cattle which were certified as sound reacted when they reached our quarantine stations, an inspector was sent to Great Britain, the country from which most of our purebred stock is purchased, and cattle are now officially tested before they leave the farm where they were raised. An arrangement has also been made to accept the certificates of tuberculin tests issued by the Canadian official veterinarians. This action has almost entirely protected American importers from the condemnation of animals at the time of importation, and at the same time aids them in securing only healthy cattle. For these tests made abroad there is no expense to the importer, as this Government pays the inspector's salary and expenses and the certificates are issued without charge.

It would appear that these efforts to protect our farmers from disease and at the same time to protect the importer from loss would meet with instant and unanimous approval. This, however, is not the case. There is still much dissatisfaction on the part of the few—the very few comparatively—who import cattle or who are indirectly interested in importations.

THE REASONABLENESS OF THE REGULATIONS.

The desirability of the regulations has been denied; the danger from tuberculosis has been questioned; the tuberculin test has been denounced.

It is the object of this bulletin to show the reasonableness of the regulations requiring a tuberculin test for imported cattle, and that the interests of our farmers and cattle raisers demand its continuance.

That the profits of some importers may be reduced is freely admitted; that there may be interference with the plans of breeders and dealers in other countries, some of whom have been prompt to voice their indignation, is not at all unlikely; but the question is larger than this—it is the maintenance of the healthfulness and integrity of our own breeding herds; it is the protection of the public health of this country by avoiding, so far as possible, the propagation of this dangerous disease among our food-producing animals; it is the preservation of our enormous export trade in live animals, meats, and dairy products. What could be more essential than this to the prosperity of our agriculture and the welfare of the nation?

TUBERCULOSIS IN BEEF BREEDS.

It has been asserted, however, that there is no evidence that cattle offered from the beef breeds of Great Britain are dangerous, and it is alleged that this Government has no statistics or facts whatever bearing upon the class of cattle to which the regulation directly applies. That of itself, it is claimed, is a rank injustice upon the face of it.[1] If these charges were correct they would make it appear that the tuberculin test of purebred cattle of the beef breeds coming from Great Britain has not been shown to be necessary—that it is an uncalled for restriction and a rank injustice. The farmers of the United States have a right to know the facts with reference to such an important matter and one which so directly affects their present and future interests. Some details will therefore be presented which, it is believed, will be sufficient to satisfy the unbiased reader.

In 1894 a royal commission was appointed in Great Britain "to inquire into the effect of food derived from tuberculous animals on human health." This commission had the power to summon witnesses, to take evidence, to examine books, documents, and records, and personally to visit and inspect such places as it deemed expedient. The report, which was made in 1895, after giving the statistics of the Copenhagen slaughterhouses, where 17.7 per cent of the oxen and cows were found tuberculous, and of the Berlin slaughterhouses, where 15.1 per cent of such animals were tuberculous, used the following language:

> There do not exist for the United Kingdom any records with which these can be compared. At Copenhagen and Berlin all the meat furnished to the towns is submitted to the inspection of experts. But we have reason to think that the facts about tuberculous animals would exhibit a broad resemblance to the foregoing [i. e., to those of Berlin and Copenhagen] if such records could be obtained—not more different in degree, that is, than the difference seen between the Copenhagen and Berlin records, or than would be explained by variations in the practice of dealing with food animals in one and another country. Such few data as are to be had for the United Kingdom confirm this view. [Report I, p. 11.]

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[1] Breeders' Gazette, February 20, 1901.

In 1896 a second royal commission was appointed "to inquire into the administrative procedures for controlling danger to man through the use as food of the meat and milk of tuberculous animals." This commission had equal power to investigate, and in its report, which was made in 1898, it said:

> One very serious feature in the distribution of this disease is its prevalence among high-class pedigree stock. [Report I, p. 5.]

The returns from testing British cattle with tuberculin, supplied by the Royal Veterinary College, as stated in March, 1900, showed that among 15,392 animals tested 4,105, or 26 per cent, reacted.[1]

During the slaughter of cattle for pleuropneumonia careful examinations of the carcasses were made for tuberculosis. Of 300 head killed near Edinburgh 120, or 40 per cent, were tuberculous.[2] Of 4,160 killed in England 20 per cent were tuberculous.[3] Of one of these lots of cattle (451 animals) the president of the Lancashire Farmers' Association testified that they were fairly representative cattle—cows, heifers, and growing stock—a thoroughly mixed lot. Twenty per cent of these animals had tuberculosis.

Of 398 bovine animals taken haphazard in the city of Manchester 120, or 30 per cent, were tuberculous. Among these animals were 168 cows, 69, or 41 per cent, being tuberculous, and 2 having diseased udders.[4]

The result of testing the Queen's herd at Windsor was that 36 out of 40, or 90 per cent, were found tuberculous.[5]

The investigations made by the British Dairy Farmers' Association deserve particular attention, coming as they do directly from a cattle owners' organization. The council of this association "resolved to submit the general consideration of the question to a committee, with a view to some more definite understanding as to the possible extent to which tuberculosis exists in dairy cattle." The secretary was instructed to write to a number of dairy farmers, being members of the association, asking their cooperation and the use of their herds for the application of the tests. Of the herds offered, 9 were selected containing 461 cows and 12 bulls, and 188 of these animals reacted, being 40.8 per cent. There were among these cattle 335 Shorthorns, of which 119, or 35 per cent, reacted; 67 cross-breds, of which 28, or 42 per cent, reacted; 47 Ayrshires, of which 37, or 80 per cent, reacted.[6]

Another experiment carrying great weight is that of the Cheshire County council. The technical instruction committee set aside £250 to be used by a joint committee from the agricultural and horticultural schools and Worleson Dairy Institute for applying the tuberculin test to their herds. The tests were made February 15, 1899. The results were: Worleson herd of 54 animals, 16 diseased, or 29.6 per cent; agricultural school herd of 17 animals, 4 diseased, or 23.5 per cent. The Worleson herd consisted of Shorthorn cows. In each herd the purebred Shorthorn bull was tuberculous. The results of the tuberculin test were confirmed by the slaughter of the animals and examination of the carcasses.[1]

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[1] Jour. of Comp. Path. and Ther., March, 1900, p. 69.

[2] Rept. Roy. Com., 1895, Pt. I, p. 11.

[3] Report of Royal Commission, 1898, Pt. II, pp. 47–288.

[4] Report of Royal Commission, 1898, Pt. II, p. 164.

[5] Jour. of Comp. Path. and Ther., 1899, p. 50.

[6] Jour. British Dairy Farmers' Association, September 29, 1899.

Sir T. D. G. Carmichael, member of Parliament for Midlothian, gave evidence before the royal commission that his Polled Angus herd was tested in the spring of 1895. "The results of the test were fearfully unexpected and alarming." Of 30 tested 13 showed decided reaction—43 per cent. Again, he speaks of having 41 animals tested the same spring and 16 reacted—39.5 per cent.[2]

Of 80 Shorthorn cattle, intended for export, which were tested 34 reacted, or 42 per cent.[3]

Of a herd of 25 British Shorthorns recently tested in quarantine 40 per cent were found tuberculous.

The addition of these animals above referred to gives 20,930 head examined and 5,441, or 26 per cent, pronounced tuberculous. And these herds were not selected because they were supposed to be tuberculous, but represent the general cattle stock of the country. These animals included at least 470 head of Shorthorns, of which 170, or 34 per cent, were tuberculous.

To these facts may be added the evidence of Professor Bang that tuberculosis was brought to Denmark in the first half of the nineteenth century by cattle from Switzerland, Schleswig, and England, and that the same thing is now going on in Sweden and Norway, particularly through English cattle.[4]

Also the evidence of M. Sivori, chief of section at the ministry of agriculture, Argentina, who has investigated tuberculosis in that country, and who says that "thirty or forty years ago tuberculosis was unknown in Argentine cattle, and it is still unknown among the native (Criollo) cattle. Its appearance dates from the introduction of pure breeding animals. Statistics prove that tuberculosis is observed among the grades, above all among those of the Durham and less among the Hereford."[5]

And also the evidence of the royal commission of Victoria, Australia, and of the New Zealand department of agriculture, showing a large proportion of tuberculous cattle in those colonies, where the disease was almost certainly carried by British cattle.

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[1] Journ. of Comp. Path. and Ther., 1899, p. 344.

[2] Rept. Roy. Com., 1898, II, pp. 288, 289.

[3] Journ. of Comp. Path. and Ther., 1899, p. 69.

[4] Congress for the Study of Tuberculosis in Men and Animals, 4th session, Paris. 1898, p. 247.

[5] Recueil de Med. Veterinaire, 1899, p. 603.

Returning now to the report of the British royal commission, one witness testified that in his experience the most susceptible cattle were "Shorthorns, Ayrshires, and, following them, Jerseys."[1] Another witness, a salesman and cattle dealer, and vice-president of the National Federation of Butchers and Meat Traders, testified that there is more tuberculosis in purebred pedigree Shorthorns than in other breeds, and that on this account he would never buy fat cattle from certain families of Shorthorns unless they were crossed with some other cattle.[2]

In justice to Shorthorn cattle it should be said in this connection that they are probably no more susceptible to tuberculosis than are other breeds, but the disease has been allowed to spread in certain herds and families to such an extent as to give a wrong impression concerning the breed as a whole.

In the same manner that tuberculosis has been carried from Great Britain to Denmark, Sweden, Norway, Argentina, and Australia, it has also been taken to Canada. In one herd of imported cattle slaughtered in the Canadian quarantine station, 13 out of 14 animals were found tuberculous. One of the largest Shorthorn herds in Canada was some time ago tested because an animal from it was condemned when offered for shipment to the United States. This herd was found to be very badly affected and an effort is being made to eradicate the disease by the Bang method. A Canadian official publication says of another Shorthorn herd, which at one time had a very high reputation, that when an investigation in regard to tuberculosis was recently made the disease was found among ordinary cattle wherever animals from this herd had been introduced, and that this herd, which had been looked upon as one of the greatest benefits to the farming community, was really a danger, because it disseminated tuberculosis among the farmers' herds.[3] Still another well-known herd recently attracted attention because 4 animals from it offered for export to the United States were all tuberculous.

From December 23, 1900, to February 19, 1901, the period that the Department inspector tested all Canadian cattle intended for shipment to the United States, 140 purebred Shorthorns and 3 Shorthorn grades were tested, and of the total number 26, or 18 per cent, reacted. During the first month that this inspection was enforced and when it may be assumed that the condition of the cattle most nearly represented what it had previously been, 74 cattle were offered for importation and 18, or 24.3 per cent, were found tuberculous. This evidence is submitted to the farmers of the United States for their information. It is direct, reliable, comprehensive, and little less than astounding. It shows the kind of cattle which were being brought to this country before the tuberculin test was applied, and which some persons have been solicitous to have admitted without a test to discover the presence of this disease. Such cattle were imported for breeding purposes, and they were distributed among the breeding herds of this country, and, when diseased, they contaminated our meat and milk supply at the very fountain head of these industries.

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[1] Part II, p. 284.

[2] Part II, pp. 310, 311.

[3] Tests and Treatment of Tuberculous Cattle, 1900, p. 19.

LOSS FROM DISEASED BREEDING STOCK.

It is difficult for even the best informed persons to realize the loss which our farmers and dairymen have suffered from the unrestricted distribution of diseased breeding stock during recent years. As an example, a single instance is quoted which was put on record by one of our most thoughtful and trusted American agricultural workers. In a recent communication, Prof. W. A. Henry, director of the Wisconsin Agricultural Experiment Station, said:

> Several years ago the writer of this communication received a letter from a good citizen in the State of Iowa, asking him to name some breeder of good cattle of a certain breed from whom the inquirer might purchase some choice stock. As a result this Iowa party came to Wisconsin and purchased 7 head of purebred stock, paying good prices for them. In taking that stock back to Iowa he carried back tuberculosis in the most virulent form it ever affected a herd in this State. He lost all of the 7 animals purchased through death by tuberculosis, and contaminated his whole herd so that he was forced to sacrifice all of the dairy animals he had. And this is but one of more than a dozen places where tuberculosis was spread by sales from a single herd of purebred cattle. [Hoard's Dairyman, Dec. 28, 1900.]

Is there any possible argument which can be advanced to show that it is in the interest of farmers and stock raisers generally to perpetuate the existence of this terrible disease among our breeding herds, and, much less, to favor the introduction of still more contagion from abroad? Not only is it against the farmers' interests to have the disease favored and propagated and spread, but it is also against the interest of the breeder of purebred stock.

The farmers and dairymen who have suffered from tuberculosis in their herds have not yet fully realized that they have generally introduced the disease by the purchase of purebred stock. Only a few weeks ago great excitement was caused in Vermont by the slaughter of several large dairy herds in which a very large proportion of the animals were found tuberculous. Some writers for the press exclaimed in effect: "These are our most valuable and highly bred herds; if they are tuberculous to such an extent, what must be the condition of the remainder of our cattle!" They did not grasp the idea that these particular herds had probably been contaminated in the very effort to improve them by using purebred breeding stock. But others who have traced the origin of such outbreaks and disasters will soon make the fact apparent to every sufferer, and then there may be such fear of purebred stock that the market will be injured and the cattle industry retarded for many years in its development. The enterprising breeders of purebred stock in the United States should take active steps at once to guard against such a result. They should not, by any neglect on their part, allow a prejudice to form in the public mind which would be detrimental to the live-stock interests of the country. There is nothing that promises more benefit to American agriculture than the rapid grading up of our herds by the use of purebred stock of the improved breeds, providing this stock is free from disease; but, on the other hand, if this stock is permitted by the breeders to become tuberculous, if the purebred herds are the centers from which the contagion is constantly spread over the country, there is nothing which can do more harm. Our herds are probably in better condition to-day than those of any other country. Is it not important that they should be kept in this superior condition, and that the small proportion with disease should be cleaned up and not allowed to continue a menace to a great industry?

DANGER TO THE RANGE COUNTRY.

The danger from tuberculosis is not confined to the dairy and farming regions of the country. It menaces the cattle on the ranges of the Great Plains and Rocky Mountain region as well. Heretofore it has been generally believed that the ravages of this disease were confined to cattle that pass at least a portion of the year in stables. This conclusion is now disproved by the spread of tuberculosis in Argentina, Australia, and New Zealand, where the cattle pass their entire lives in the open air, and where the climate is very favorable to the cure of tuberculosis in man, as is particularly the case in parts of Australia. If the cattle in the countries mentioned are subject to this disease, how can we expect our range cattle to retain their comparative exemption from its attacks if we continue to turn among them a constant stream of tuberculous breeding stock?

The slaughterhouse statistics of Buenos Aires, the capital of Argentina, for 1898 give the following figures:

Number of cattle slaughtered and number found tuberculous in Buenos Aires in 1898.

	Animals slaughtered.	Affected with tuberculosis.	Percentage tuberculous.
Cows	128,032	665	0.5
Steers	308,207	641	.2
Total	436,239	1,306	.3

That is, of the cows slaughtered for beef about 5 in 1,000 are tuberculous; of the steers, 2 in 1,000; and of all the cattle slaughtered 3 in 1,000 are affected with this disease. There are at Buenos Aires a total of 4,844 milch cows, of which 3,717 have been tested with tuberculin and 657 found tuberculous. This shows 17.7 per cent of the cows affected. (Sivori.)

The dairy instructor of Queensland, Australia, said in the annual report of the department of agriculture of that colony for 1897-98:

> This disease is gaining ground very rapidly, and from tests and personal observations I am quite satisfied that 20 per cent of the dairy herds in Queensland are more or less affected with tuberculosis. * * * The question may be asked why this disease was not prevalent years ago. The answer is that the disease is spreading more rapidly every year, and for every one beast that is affected this year five times the number will contract the disease next year, and so the disease will continue to spread unless stringent measures are adopted to check it.

A year later the director of the stock institute stated that "the time has arrived when stock breeders and dairy farmers are beginning to recognize that some active steps should be taken in attempting to eradicate this most terrible of all bovine diseases." He further says:

> The numerous practical demonstrations by officers of this institute, in various centers, have been the means of convincing numbers of stock owners on the following points in connection with tuberculosis in cattle and the tuberculin test:
>
> (1) That the disease (tuberculosis) is extremely prevalent.
>
> (2) The impossibility of detecting the disease in the earlier stages by outward signs.
>
> (3) That contagion is the principal means by which the disease is spread.
>
> (4) That heredity does not exert the amount of influence that is generally supposed.
>
> (5) That the disease is preventable.[1]

The proportion of animals in the general stock of the colony of Queensland which are affected with tuberculosis is shown by the following table compiled from the inspection returns at the various meat works:

Number of cattle and pigs slaughtered and number found tuberculous in Queensland in 1897-98.

Meat works.	Bullocks.		Cows.		Pigs.	
	Slaughtered.	Tuberculous.	Slaughtered.	Tuberculous.	Slaughtered.	Tuberculous.
	Number.	*Per cent.*	*Number.*	*Per cent.*	*Number.*	*Per cent.*
Eagle Farm Works	42,256	0.564	4,824	2.990	....	....
Queensport Works	30,279	.429	5,318	1.119	1,325	0.452
Redbank Works	3,988	.940	1,473	2.511	....	....
Oakey Creek Works	1,997	1.614	1,640	3.231	....	....
Mooraree Works	1,145	.262	....	....	232	.430
Zillmere Bacon Factory	....	....	....	....	43,253	.147
Oxley Bacon Factory	....	....	....	....	5,537	.374
Broadsound Meat Works	8,751	.882	4,389	2.870	....	....
Mackay Meat Works	15,735	2.408	4,521	3.149	....	....
Total	104,151	.860	22,165	2.535	50,347	.182

In the Federal inspection of the United States the percentage of condemnations for tuberculosis in cattle in the year ended June 30, 1900, was 0.0976, or about one-ninth that shown for bullocks in the above table from Queensland. The percentage of condemnations with hogs was in the United States 0.0233, or about one-eighth that shown in Queensland.

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[1] Annual Report of the Department of Agriculture, Queensland, 1898-99, pp. 108, 109.

There are in Queensland, however, a number of meat works not included in the table because the bullocks and cows were not separated. These may be grouped as follows:

Additional meat works, showing number of cattle and pigs slaughtered and number found tuberculous.

Meat works.	Cattle.		Pigs.	
	Slaughtered.	Tuberculous.	Slaughtered.	Tuberculous.
	Number.	*Per cent.*	*Number.*	*Per cent.*
Lakes Creek Works	48,137	3.92	1,135	2.71
Ross River Works	28,206	1.68		
Gravial Park Meat Works	3,378	5.59		
Bowen Meat Works	33,996	2.68		
Gladstone Meat Works	19,586	1.39		
Sellheim Meat Works	18,878	9.50		
Total	152,181	3.63	1,135	2.71

If the percentage of animals found tuberculous at the first group of works is surprising, that at the second group appears simply amazing, as it is more than four times as great. The proportion of pigs found tuberculous at Lakes Creek and of cattle at the Sellheim Meat Works is remarkable and demonstrates to what extent tuberculosis may spread even where animals run at large and where the climate is very favorable. That this inspection does not show the full extent of tuberculosis in that colony is indicated by the returns from the Mackay Meat Works, where among the bullocks slaughtered there were 2.408 per cent of carcasses or parts of carcasses tuberculous, but it was necessary to condemn 4.82 per cent of the tongues of these bullocks because they were affected with this disease. This large proportion of affected tongues would seem to indicate that the contagion is spread through the pastures and that the germs gain entrance to the body in many cases through the mouth.[1]

In New South Wales tuberculosis has been known for many years among cattle and was designated the "coast cough" long before its nature was suspected. In 1890 an official investigation proved that the "coast cough" was really tuberculosis and that "bovine tuberculosis was extensively prevalent among dairy cattle in the south coast district." It was also reported that "infective disease, probably tuberculosis, is to be found among swine fed on skim milk from butter factories, and is not improbably due to the use of milk from tuberculous cattle."

In a letter from the department of public health, Sydney, New South Wales, February 20, 1900, signed J. Ashburton Thompson, addressed to the United States consul at that place and forwarded through the State Department, occurs the following:

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[1] Annual Report of Department of Agriculture, Queensland, 1898-99, pp. 122-128.

> The percentage of tuberculous animals discovered at the works managed by Mr. Gee is not great. It is less than we discovered in the ordinary course of business at Glebe Island, and that may be taken on an average to be about 3.5 per cent over all on a number which averages 77,000 head of horned cattle, among which the number of cows may be stated as usually 6,000, or about a thirteenth.

In other words, the proportion of cattle affected with tuberculosis in New South Wales appears to be fully as great as in Queensland.

In New Zealand tuberculosis is apparently somewhat more prevalent than in Australia, and affects cattle which are never stabled. The following table, compiled from the returns of veterinary inspectors at various slaughtering establishments, shows the percentage of tubercular animals among the beef cattle and pigs of the colony:[1]

Number of cattle, calves, and pigs found tuberculous in New Zealand.

	Examined.	Affected with tuberculosis.	Percentage tuberculous.
Cattle	21,160	933	4.40
Calves	876	....	....
Pigs	5,066	35	.69

Referring to the causation of the disease, Dr. Gilruth says:

> I am not of the opinion that dairy cows as a whole receive the contagium by means of contaminated byres, or sheds, though certain of their number may do so. The majority of the milking sheds which I have examined were only used during the operation of milking; few of the animals were fed therein, and being in nearly every instance built of timber without a wall on the lee side, they were only too well ventilated.
>
> * * * * * * *
>
> Were the disease confined to the dairy herds in the colony we might still hesitate before condemning the "want-of-ventilation" theory. But when one finds frequently a large percentage of animals affected which have never been housed, for the simple reason that no house is necessary or desirable, the theory fails. Bullocks are never, under any circumstances, housed in the colony from the day they are born in the paddock till they are slaughtered, yet we have seen that the number of bullocks which are found affected at the abattoir is considerable. I had a striking example of this during the last year. Out of a large herd of bullocks in the North Island, 40 of which the inspector was suspicious were drafted for slaughter. I personally made a postmortem examination of 11 of the number—the first of the lot to be slaughtered—and of the 11 found 9 tubercular to a marked degree. These animals were bullocks, 6-year-olds and over, the culls of the herd for several years, which had run in paddocks of at least 1,000 acres in extent, had never been under a roof till in the railway truck, and could only be approached on horseback. To anticipate any possible objection, it may be stated that microscopical examinations were made of the tissues with positive results.

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[1] Report of J. A. Gilruth, M. R. C. V. S., chief veterinary officer and bacteriologist, New Zealand Department of Agriculture, 1900, p. 18.

These facts are cited to show the danger with which our cattle are menaced through tuberculous breeding stock, even though they live continually in the open air and in the most favorable climates of the country. Should it be necessary to condemn 4 or 5 per cent of our beef cattle, as is the case in some parts of Australia and New Zealand, the loss would be tremendous and would be a great burden upon the cattle industry. At present our condemnations are about one-tenth of 1 per cent, amounting, with 5,000,000 cattle, the number annually inspected, to 5,000 carcasses. If these carcasses are worth $50 each, the annual loss from cattle condemned on account of tuberculosis would be $250,000. If the condemnations were raised to 5 per cent, however, it would mean the yearly destruction of 250,000 carcasses, which, at the same valuation per carcass, would be worth $12,500,000. To this we should add at least an equal sum to cover losses among dairy stock and purebred cattle, and perhaps $5,000,000 for loss among swine. Is it not worth our while to endeavor to protect our stock growers from such a drain on their industry and one which, once established, could not be stopped for many years?

PRESENT REGULATIONS PROPER AND CONSISTENT.

In order to create a prejudice against the regulations requiring the testing of imported cattle for tuberculosis, the regulations of the Department have been misrepresented and most unjustly criticised. One writer presented the subject as follows:

> Look into the law as it now exists between Canada and the United States and it will be found to be the most nonsensical arrangement that has ever been entered into by any two civilized countries. Purebred cattle on the free list, so far as duty is concerned, are subject to test before they are allowed to pass either way, cattle of no breeding or not purebred are passed either way on inspection and the payment of duty. Can it be possible that this arrangement was advised by our chief veterinarians because there would be no revenue from the poorer class of cattle anyway, as the expense would be too great and the profit would not pay for it, or are the purebred cattle the only cattle subject to tuberculosis?

The facts are that the regulations do not mention purebred cattle nor place any restrictions upon them which are not applied to other classes of cattle. All cattle over six months old, whether purebred or common stock, if imported for breeding or dairy purposes, are required to be tested; while all cattle for immediate slaughter, and for grazing or feeding, and all calves under six months old, are admitted on inspection without the tuberculin test. It should be apparent to any intelligent person that if the effort had been to make regulations which would apply only to valuable stock, then purebred calves would have been tested and dairy cattle, which are mostly of common stock, would have been permitted to come in without test.

After this explanation was made the editor reiterated the charge of lack of intelligence and inconsistency in the regulations, arguing that all cattle are subject to tuberculosis, and that consistency demanded that all or none should be tested. This charge was taken up and republished with variations by a number of agricultural journals, which apparently favor the free importation of diseased cattle and their fraudulent sale to American farmers. For this reason a further explanation of the regulations is deemed advisable in order to satisfy every unbiased person as to their reasonableness. The regulations have been drawn to require that those classes of cattle which are most affected with tuberculosis should be subjected to the tuberculin test, and that those which are only rarely affected should be allowed to come in without this test. That is the only motive which was considered, and it is a proper and consistent one. The class of cattle offered for importation from Canada, which has been found most seriously affected with tuberculosis, is the purebred stock. Of these cattle, 1 in 5 has been found tuberculous. The class of cattle coming next in danger is the dairy stock, mostly cows imported for milk production. Not more than 1 in 2,000 of the cattle brought in for grazing and feeding is affected with tuberculosis, and only a slightly larger proportion is found among cattle for immediate slaughter and calves under six months old.

The object of the regulations is to protect the American farmer from tuberculosis. This disease is brought to him in nearly every case by purebred stock or dairy cows. Consequently, it is required that these classes of cattle should be tested before they are allowed to enter the country. The cattle for immediate slaughter do not go to the farms or mingle with farm cattle, and therefore there is no reason for testing them. The cattle for grazing and feeding are mostly young stock, and, like our own beef cattle, are still comparatively free from tuberculosis. It is thought that the danger from such cattle is not sufficient under present conditions to warrant the expense of a tuberculin test. If there is any inconsistency anywhere it is found in the case of an editor arguing, on the one hand, that purebred cattle, 20 in 100 of which are tuberculous, should not be tested, and, on the other hand, that grazing cattle, only 1 in 2,000 of which are tuberculous, should be tested. It does not need an extended argument to prove that when one class of cattle has 400 times as much tuberculosis as another class, the class most badly affected may require different regulations from the class which is scarcely at all affected.

Moreover, the Department is not seeking to enforce regulations so rigorous and burdensome as to be theoretically perfect in preventing the introduction of tuberculosis. If it went to this extent it would be necessary to test horses, sheep, swine, and dogs, as well as all cattle.

It does not consider this necessary, but if it did go to this extreme, those who now demand such action on the ground of consistency would be loudest in their denunciations. If any mistake has been made it is in allowing the importation of purebred calves under six months old without a tuberculin test. These animals are tuberculous to a far greater extent than any of the other classes allowed to come in without test, and if the regulations are made more comprehensive, such calves should be the first included within their scope.

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U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF ANIMAL INDUSTRY—BULLETIN NO. 33.
D. E. SALMON, D. V. M., Chief of Bureau.

RELATION OF BOVINE TUBERCULOSIS TO THE PUBLIC HEALTH.

BY

D. E. SALMON, D. V. M.,
CHIEF OF BUREAU OF ANIMAL INDUSTRY.

[READ AS CHAIRMAN OF THE COMMITTEE ON ANIMAL DISEASES AND ANIMAL FOOD OF THE AMERICAN PUBLIC HEALTH ASSOCIATION AT BUFFALO, N. Y., SEPTEMBER 16, 1901.]

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1901.

LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Animal Industry,
Washington, D. C., October 10, 1901.

Sir: I have the honor to transmit herewith a paper on the "Relation of bovine tuberculosis to the public health," which was read before the American Public Health Association, held at Buffalo on September 16, 1901, by the undersigned as chairman of the committee of "Animal diseases and animal food." There is widespread interest in this subject at this time and the demand for information is very great. I therefore recommend the publication of this paper as Bulletin No. 33 of the Bureau of Animal Industry.

Respectfully,

D. E. Salmon,
Chief of Bureau.

Hon. James Wilson,
Secretary.

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RELATION OF BOVINE TUBERCULOSIS TO PUBLIC HEALTH.

INTRODUCTION.

The interest which has recently been manifested in the subject of bovine tuberculosis, and particularly in the danger of its being communicated to mankind, led the writer, as chairman of the committee on animal diseases and animal foods of the American Public Health Association, to prepare a report covering the essential points of this subject and presenting the most striking evidence in his possession. This report is published herewith. The more important topics embraced in the discussion are as follows:

1. Extent of bovine tuberculosis in Europe and the United States.
2. Effect of products of diseased animals upon the health of consumers, without reference to the direct transmission of a contagious disease.
3. The communicability of bovine tuberculosis to man.

In treating of the communication of tuberculosis from cattle to man, it is first shown that the statement that human tuberculosis is not communicable to cattle is unwarranted by the evidence, since both Martin in England and Chauveau in France have obtained positive infection and extensive disease by feeding to cattle tubercular material from human sources. It is further shown that the human and bovine diseases can not be entirely different, because tuberculin produced from human bacilli causes reaction in bovine tuberculosis. Another argument used in this connection is that in the whole list of diseases which affect a wide range of animal life, being communicable between widely separated species of animals, there is no other disease which is not also communicable to man. The inference is, therefore, that as bovine tuberculosis is communicable to a large number of species and to widely separated forms of animal life, it is also communicable to man.

As more direct evidence, there are cited cases to establish—

1. The accidental infection of man by inoculation with bovine bacilli.
2. The infection of man by consuming the milk of tuberculous cows.

To corroborate this evidence statistics are presented proving the occurrence with mankind of a large number of cases of intestinal and other abdominal forms of tuberculosis, particularly in England and Scotland. It is shown that there is no relation between the total number of cases of tuberculosis and the cases of abdominal tuberculosis in various countries, and the conclusion is drawn that the primary abdominal tuberculosis probably is not caused entirely by infection from other cases of human tuberculosis. It is also shown from statistics of postmortem examinations carefully made by competent persons that in some parts of the world at least there is a considerable proportion of cases of tuberculosis in man in which the infection occurred through the intestine.

These lines of evidence are clearly opposed to the principal assertions made in the paper read by Koch at the British Congress on Tuberculosis this year. But this is not the worst aspect of the case, since the evidence of Delepine and Still indicates that there are many more cases of intestinal tuberculosis in children than are actually discovered or recognized. More than this, it is shown on the evidence of such competent witnesses as Woodhead, St. Clair Thompson, and Lord Lister that infection through the medium of the food may not necessarily be accompanied by disease of the intestines. The organs first attacked after feeding on tubercular material may be the mesenteric glands and liver, or even the bronchial and mediastinal glands and the lungs. While, therefore, the facts show that the intestines are sometimes the first organs attacked after tubercular infection is taken into the digestive organs through the mouth, they also show that the number of cases of primary intestinal infection are no indication of the number of cases in which the infection has been carried by the food.

The arguments of those who deny the danger from bovine tuberculosis are thus shown to be weak and out of harmony with the clearly established facts already recorded. While it may still be said that it can not be absolutely proved that any given case of tuberculosis in man was caused by bovine bacilli, the evidence is about as strong as we can expect in the case of human subjects. It is generally admitted that the great majority of cases of pulmonary tuberculosis in man are caused by the inhalation of bacilli from human sources, and very likely this conclusion is correct, but when we ask for direct and absolute evidence of the fact we find it is about as difficult to produce as in the case of infection by bovine bacilli.

The object of this paper is not to prejudge the case, however, so much as it is to present the present status of the matter. We can not in any department of science drop all the facts on record in regard to a subject because some investigator thinks the results of his researches do not harmonize with the observations of those who have preceded him. A fact once established remains a fact for all time; and while we may sometimes be mistaken as to what is a fact or as to the application of the facts, it is very seldom that conclusions which apparently harmonize with a long series of facts are suddenly revolutionized. At all events, before such a revolution can occur there must be direct and incontestable evidence on the side of the new views and a reasonable explanation of the facts which are apparently opposed to them. Neither of these conditions has yet been fulfilled by those who deny that bovine tuberculosis is communicable to man.

Many experiments are now in progress in various parts of the world which will bring additional evidence to bear upon the questions herein discussed. Until these are concluded it is the duty of all to use every precaution which would be required in case the identity of human and bovine tuberculosis were universally conceded. There are few consumers who, after an examination of the facts collected in this report, would knowingly partake of food contaminated with the germs of bovine tuberculosis; still fewer would wish to provide such food for their young and susceptible children. Under these circumstances should not the producer deliver articles of food which in this respect are above reproach?

D. E. SALMON.

REPORT OF THE COMMITTEE.

Your committee on animal diseases and animal food has been impressed with the importance of the discussions which occurred at the recent British congress on tuberculosis concerning bovine tuberculosis and its effects upon the public health. Some of the opinions expressed at that congress have aroused the most extended interest among physicians and among laymen, and it seems appropriate that your committee should at this time review the subject at some length, in order to make clear what is already known, preparatory to taking steps definitely to settle contested questions by experimentation.

EXTENT OF BOVINE TUBERCULOSIS.

The extent and rapid increase of bovine tuberculosis in various countries has during recent years caused alarm, both because of its effects in reducing the general food supply and its supposed danger to human health.

The slaughterhouse statistics of Prussia show 14.6 per cent of the cattle and 2.14 per cent of the swine to be tuberculous. In Saxony the percentage is 29.13 with cattle and 3.10 with swine. In the city of Leipzig the figures are 36.4 for cattle and 2.17 for swine. (Siedamgrotzky.) Of 20,850 animals in Belgium tested with tuberculin in 1896, 48.88 per cent reacted. (Stubbe.) Of 25,439 tested in Denmark from 1893 to 1895, 49.3 per cent reacted; and of 67,263 tested from 1896 to 1898, 32.8 per cent reacted. (Bang.) An examination of 20,930 cattle in Great Britain, either slaughtered and examined postmortem or tested with tuberculin, showed 5,441, or 26 per cent, affected with tuberculosis. MacFadyean estimates that 30 per cent of the cows in Great Britain are tuberculous.

Figures available in the United States do not cover a sufficient area of our territory to allow us to make a reliable estimate of the extent of tuberculosis with milch cows. There is little doubt, however, but that the disease has been increasing both with dairy cattle and swine. From a recent review by Russell and Hastings, of the Wisconsin Agricultural Experiment Station, of tests of cattle for tuberculosis which have been made in the United States, the following summary is presented:[1]

Statistics of tests for tuberculosis in the United States.

State.	Number tested.	Number tubercular.	Per cent tubercular.
Vermont	60,000	2,390	3.9
Massachusetts	24,685	12,443	50.0
Massachusetts, entire herds	4,093	1,080	26.4
Connecticut	6,300	....	14.2
New York, 1894	947	66	6.9
New York, 1897–98	1,200	163	18.4
Pennsylvania	34,000	4,800	14.1
New Jersey	2,500	....	21.4
Illinois, 1897–98	929	....	12.0
Illinois, 1899	3,655	560	15.32
Michigan	....	....	13.0
Minnesota	3,430	....	11.1
Iowa	873	122	13.8
Wisconsin:			
Experiment Station tests—			
Suspected herds	328	115	35.6
Nonsuspected herds	935	84	9.0
State veterinarian's tests—			
Suspected herds	588	191	32.5
Tests of local veterinarians under State veterinarian, cattle intended for shipment to States requiring tuberculin certificate	3,421	76	2.2

The State veterinarian of Pennsylvania, Dr. Pearson, thinks that not over 2 per cent of the cattle of that State are tuberculous, and probably if a general test of all the cattle of the other States mentioned were made we should find a very much smaller proportion tuberculous than is indicated by this tabular statement. The explanation of the high percentages that have been given is found in the fact that it has been for the most part suspected herds which have been tested. Admitting that the greater part of these percentages are too high, they are still sufficient to demonstrate the wide distribution of tuberculosis and its comparative frequency.

Our beef cattle, as they come to the large packing houses, are yet comparatively free from tuberculosis. Of 4,841,166 cattle slaughtered in the year 1900 under Federal inspection, but 5,279, or 0.11 per cent, were sufficiently affected to cause the condemnation of any part of the carcass. Of 23,336,884 hogs similarly inspected, 5,440 were sufficiently affected to cause condemnation of some part of the carcass. This is equal to 0.023 per cent, or slightly more than one-fifth the proportion found in beef cattle.

The slaughterhouse statistics of all countries show that the percentage of affected hogs increases as the disease becomes more common in cattle, so that we must consider not only the effect of the disease upon beef and milk-producing animals, but also upon our swine. The disease is more acute with hogs than with cattle, and there is a much greater tendency to generalization, consequently the parts used for human food are more likely to be affected; and if there is a possibility of communicating the disease through the meat the danger is increased by this peculiarity of these animals.

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[1] Bulletin No. 84, Wisconsin Agricultural Experiment Station, March, 1901.

EFFECT OF PRODUCTS OF DISEASED ANIMALS ON PUBLIC HEALTH.

Admitting, as we must, the increase of this disease among our food-producing animals, particularly cattle and swine, it appears that this fact should cause concern from a public health standpoint irrespective of the question of the direct communicability of tuberculosis from animals to man. The people of the United States have always demanded meat from animals which were free from disease. Animal food has been so abundant and so cheap that even the poorer classes of our population have been able to use the best. There is no reason apparent at this time why there should be a departure from this rule and they be expected to consume the products of animals affected with tuberculosis. Animals so affected often have mixed infection, with high temperature, the formation of pus in different parts of the body, and particularly in the mammary glands, and there is undoubtedly in many cases a considerable development of toxins. The flesh of such animals must be affected in the same way as is that of animals affected with other fevers and septic conditions. The extensive development of tubercular lesions in the udder affects the secretion of milk, changes its composition, causes the secretion of great quantities of pus which are mixed with the milk, and leads to the development of a great variety of saprophytic germs which multiply in the milk and develop various decomposition products.

The consumption of food of this character has always been considered harmful, and especially so to children. It may seriously affect the digestion and cause diarrhea and other forms of illness by the toxins which are taken. It is extremely desirable that the source of our food supply should be guarded from contamination by disease and kept in as nearly a normal and healthy condition as possible. Every departure from this ideal state is a menace to the consumer and an injury to the public at large.

THE COMMUNICABILITY OF BOVINE TUBERCULOSIS TO MAN.

The important question as to whether bovine tuberculosis can be directly communicated to man has attracted considerable attention in this country for several years, and was discussed by the committee on animal diseases and animal food at the last meeting. The conclusion had already been reached by some writers in this country that mankind was not susceptible to the form of tuberculosis which affects cattle. Now that this conclusion has been accepted and promulgated by Koch in his address at the British Congress on Tuberculosis, and has been received so seriously by people generally as well as by the medical profession, it is deemed desirable to recapitulate what was said at that time and to add such further evidence and arguments as are available.

In this discussion we should never lose sight of the fact that, even if Koch's position is correct as to the insusceptibility of mankind to bovine tuberculosis—a conclusion which your committee believes is unwarranted by the evidence—and if it is admitted that it is unnecessary to adopt measures against the bovine disease in the fight against human tuberculosis, it does not follow, by any means, that the products of these diseased animals are harmless and should be allowed to go into consumption. Nevertheless, Koch's conclusion is being used already as an argument and excuse for the sale of tuberculous meat and milk. This discussion as to the communicability of bovine tuberculosis should not be allowed to obscure the general question of the importance of condemning meat and milk of diseased animals, whether the disease is or is not a specific one which may be communicated to the consumer of these products. There is no argument to justify the sale of milk secreted from tuberculous udders, reeking with pus and the microorganisms which it contains, changed in its chemical composition, and unsavory to every civilized person. The question of the desirability of measures against bovine tuberculosis as a part of the campaign against human tuberculosis is a thing by itself and entirely distinct from the desirability of such measures from an economic and general public health standpoint.

Whenever this question is discussed in medical meetings or medical journals the general excuse for a toleration of the present condition of affairs is that the danger from bovine tuberculosis has been greatly exaggerated. Quite likely it has been exaggerated by some individuals, but it has just as certainly been underestimated by others. What has been the effect of the discussions heretofore held? Have the public been too much alarmed? Have sanitarians gone to too great extremes? Have we anywhere a too rigid meat inspection or a too careful supervision of the milk supply? If so, your committee is not aware of the fact. And, until this occurs, the repetition of the statement that the danger from bovine tuberculosis has been exaggerated appears to be entirely superfluous and useless.

Koch in his recent paper makes two radical assumptions: First, can be demonstrated the fact would be welcomed by every sanitarian, not because it would no longer be necessary, for economic and public health reasons, to control bovine tuberculosis, but because it would prove that some dangers which we have hitherto feared do not exist, and it would simplify the measures needed in the warfare against human tuberculosis. We should not allow ourselves, therefore, to be biased by preconceived opinions, but should honestly and conscientiously weigh all evidence that is presented.

Neither of these propositions is original with Koch, but this is probably the first time that a scientific man of such standing and authority has ventured to adopt them. Sidney Martin, in his experiments for the British royal tuberculosis commission of 1895, showed that sputum from man was far less virulent for animals than was bovine tubercular material. Theobald Smith, Frothingham, and Dinwiddie have repeated these experiments with cattle and other animals and incontestably demonstrated this conclusion. It does not appear to be entirely correct, however, to say that human tuberculosis is not communicable to cattle. It would be more accurate to say that in the experiments referred to human tuberculosis was only communicated with difficulty to cattle, and when it was communicated it remained localized and did not cause a fatal disease.

Of 6 calves to which sputum was fed by Martin, 2 showed no lesions, 1 had 53, 1 had 63, and 2 had 13 tubercular nodules, respectively, in the intestines. In one of these animals the mesenteric glands were also affected. Smith also produced small lesions in some of the animals with which he experimented. The failure to cause fatal disease in cattle with sputum bacilli appears to be due to lack of virulence, or, we might say, to low pathogenic power rather than to any essential difference in bacilli from human and bovine sources. This is shown by the fact that human bacilli were less active, not only when inoculated upon cattle, but also when inoculated upon other species of animals.

The experiments of Chauveau, which were made prior to those mentioned above, are more conclusive and can not be ignored in discussing this question. In one series of experiments he infected 2 heifers and a bull, all under 1 year old, with emulsions made from tuberculous human lungs. These infections were by ingestion, but two doses being given to each animal. One of the heifers, killed fifty-seven days after infection, had more than 200 tubercles of different sizes in the small intestines. There were also tubercles in the cecum, colon, abomasum liver, and peritoneum. The autopsy on the second heifer occurred fifty-nine days after infection. In this case the abdominal lesions were insignificant, consisting of two or three follicular hypertrophies in the jejunum and a few small tubercular mesenteric glands. The right submaxillary gland and the two retropharyngeal glands were enlarged and affected with typical tubercular infiltration. The lungs showed not less than twelve tuberculous centers, most of them the size of a walnut, and near these masses were points where tubercular infiltration was beginning. All the bronchial and mediastinal glands were enlarged, tuberculous, and infiltrated with gray and yellow matter. The bull was destroyed on the thirty-fourth day. There was a plain tuberculous eruption in the small intestine, some portions of the mucous membrane, particularly on the Peyer's patches, being covered with confluent tubercles. In the left lung there was a single tuberculous nodule of considerable size, and some lobules presented a gelatinous appearance and consistency. There were aggregations of small tubercles in the larynx and upper part of the trachea, some of which were already ulcerated. There were also tubercular granulations in the bronchi. At the time these animals were infected, three similar animals were infected in like manner with bovine material, and three others were held as checks. The latter were found free from tuberculosis. At the autopsy it was impossible to distinguish any difference between the animals infected with human and those with bovine material. All were affected, and with all the tuberculous lesions had the same characters.

Chauveau, also, made comparative experiments by intravenous injection and subcutaneous inoculation; from all of these he concluded that the human tuberculous virus acts on the bovine species exactly like the tubercular virus which comes from the bovine species itself.[1]

That the diseases are not absolutely distinct is indicated by the fact that tuberculin made from human bacilli causes a reaction in cattle affected with bovine tuberculosis. The Bureau of Animal Industry has distributed hundreds of thousands of doses of tuberculin made from human bacilli, and this tuberculin has been used by State authorities in various parts of the United States for diagnosing the disease in cattle, and has been found extremely reliable and satisfactory for this purpose. This fact would clearly indicate that if there is a difference between bacilli from human and bovine sources—and your committee is inclined provisionally to admit such a difference—it consists in minor biological variations and not in the germs being specifically distinct.

In discussing the susceptibility of man to bovine tuberculosis, it appears to your committee that Koch has simply begged the question. Even if we admit that human tuberculosis is not readily communicable to cattle, the conclusion that bovine and human tuberculosis are entirely different and not intercommunicable between these species does not necessarily follow. Another possible conclusion, and one more in harmony with what is known of comparative pathology, is that the bovine bacillus, being proved more virulent for all animals upon which it has been tried, is also more virulent for man.

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[1] Proceedings of the Congress for the Study of Human and Animal Tuberculosis, second session, Paris, 1891, p. 51.

As pointed out in this committee's report of last year, there is no contagion which affects so many and such widely separated species of animals as does the bovine bacillus and which is not at the same time pathogenic for man. Bovine tuberculosis is communicable to horses, cattle, sheep, swine, dogs, cats, guinea pigs, and rabbits. This is a very extensive range of pathogenic power. What other pathogenic germ is there which is virulent for so many and such widely separated species and which is not virulent also for man?

As examples of diseases which affect many species of animals, we have anthrax, rabies, glanders, malignant edema, and tetanus, to all of which mankind is susceptible. As examples of diseases which affect a fewer number of species, we have epizootic aphtha, which principally affects cattle and swine, and which is communicable to man; we have vaccinia, or cowpox, which affects horses and cattle and which is communicable to man; we have rinderpest, which affects only ruminants and which is not communicable to man; we have pleuropneumonia and Texas fever, which affect cattle and are not communicable to man; and we have sheep pox, which affects sheep only, and hog cholera affecting swine only, which are not communicable to man. The rule appears to be that the larger the number of animal species susceptible the more likely is a contagion to affect man. Surely a germ which is pathogenic for so many species of animals as is the bovine tubercle bacillus, should be considered as dangerous to man until positive evidence has proved its innocence.

We are not without parallel cases in comparative pathology, which should be considered in deciding such an important question. One of these is found in rabies. When the contagion of this disease is inoculated into monkeys and passed from one animal of this species to another for a few times, the virus, as is well known, becomes so lacking in pathogenic power that it no longer produces rabies in dogs when inoculated in the usual manner. It must be apparent to all how wrong it would be to conclude that because rabies of monkeys is not communicable to the dog, conversely the rabies of the dog is not communicable to monkeys; yet this appears to be exactly the kind of assumption which Koch has made in regard to the bovine tubercle bacillus.

Another parallel case is found in variola. The variola of man, commonly called smallpox, is conveyed to cattle with much difficulty. Like human tuberculosis, it produces, when inoculated in these animals, only insignificant results when compared with the disease in man, with no tendency to generalization or to the production of fatal results, but, on the other hand, the tendency is to retrogression and healing. Nevertheless, the bovine variola, known as vaccinia, or cowpox, is easily inoculated upon man, develops to the same extent as in cattle, produces characteristic lesions, runs its regular course, and may be transferred from man to man an indefinite number of times, as has been shown in the practice of vaccination. If cowpox had never been experimentally tested upon man, and we had only the results of experiments in inoculating smallpox upon cattle, we should have the same reason for concluding that vaccinia is not communicable to man that has been cited in the case of tuberculosis.

Koch alludes to two kinds of evidence available for deciding this question: First, the demonstration of cases of primary intestinal infection in man; secondly, the inoculation of cattle with bacilli found in cases of human tuberculosis. It appears to your committee that his treatment of this question is very narrow and unsatisfactory. In deciding as to the susceptibility of man the evidence now available may be classified under four heads: (1) Accidental inoculations with bovine bacilli; (2) Clinical evidence of individuals infected by use of milk; (3) Statistics of abdominal tuberculosis; (4) Results of postmortem examinations. We shall discuss the subject under these four heads.

ACCIDENTAL INOCULATIONS OF MAN WITH BOVINE BACILLI.

The first and most important line of evidence is that obtained from accidental inoculations of man with bovine bacilli. Ravenel[1] has put on record three cases of veterinarians in the State of Pennsylvania who were accidentally inoculated with bovine tuberculosis in making postmortem examinations. Case 1 was accidentally wounded in the knuckle of his forefinger. The wound healed badly and a nodule soon formed which showed a decided tendency to ulcerate. After some weeks he had the nodule removed, and a section of the excised portion was found to contain a large giant cell, but tubercle bacilli were not satisfactorily demonstrated in the preparation. The nodule recurred after excision and was finally cured by treatment in the hot-air apparatus. Case 2 was Ravenel's assistant, who scratched his knuckle on the broken end of a rib in performing a postmortem on a goat which had succumbed to an experimental inoculation with a culture of bovine tubercle bacillus. The wound healed promptly, but about three weeks after became reddened, swollen, and sensitive. It grew worse and was finally excised with a margin of healthy skin. Two guinea pigs were inoculated subcutaneously with a portion of this nodule and both of these developed a generalized tuberculosis. Case 3, a well-known veterinarian of Philadelphia, wounded the knuckle of his forefinger in making an autopsy on a tuberculous cow. Between three and four weeks afterwards the scar was noticed to be enlarged, reddened, and somewhat sensitive. As it showed no tendency to improve, but rather grew worse, it was excised some six weeks after the inoculation and the wound cauterized with bromine, since which there has been no return. The nodule was examined by Dr. John Guiteras, who demonstrated its tuberculous nature by finding tubercle bacilli in sections.

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[1] Three Cases of Tuberculosis of the Skin due to Inoculation with the Bovine Tubercle Bacillus. Mazyck P. Ravenel, Philadelphia Medical Journal, July 21, 1900.

L. Pfeiffer[1] cites the case of Veterinarian Moses, 34 years old, of healthy family and personally in good health, who pricked his left thumb in making an autopsy on a tuberculous cow. The point of the knife probably penetrated into the articulation of the first and second phalanges. The puncture healed without suppuration, but at the end of six months there formed at the cicatrix a cutaneous tubercle, and the joint was removed. Soon afterward the patient began to cough, and died of phthisis eighteen months after the accident. On opening the articulation of the thumb it was found filled with caseous masses extraordinarily rich in tubercle bacilli.

A somewhat similar case occurred in the practice of M. B. Hartzell, of Philadelphia, and was partially reported at the meeting of the American Medical Association, held at Philadelphia June 1 to 4, 1897. Further details have been received through Ravenel. The patient, a man in excellent health and weighing 175 pounds, was employed by a railroad company to clean cars used for the transportation of cattle. He was wounded upon the back of the hand by a piece of broken woodwork of a car, and typical verrucous tuberculosis developed locally. This was apparently successfully treated by Hartzell. Within a year the patient's general health changed greatly; he was emaciated, had a persistent cough with abundant expectoration, and there was a decided dullness at the left apex, with numerous rales. Death soon resulted from general tuberculosis.

A very interesting case of "primary subcutaneous tuberculosis," caused by the topical application of cream, was reported by Grothan.[2] A little girl 6 years old had suffered from an eruption on the left leg, supposed to be due to ivy poisoning. This was treated at home by the topical application of fresh cream. When seen by Grothan there was a painless ulcer of irregular shape the size of a 25-cent piece on the posterior aspect of the leg, having the characteristic appearance of a tubercular ulcer, with reddish tinged borders slightly overhanging the floor, which was covered with granulations and watery pus. There were also about a dozen light-mahogany colored spots confined to the calf of the leg and the lower third of the thigh, varying from the size of a hazelnut to the half of a large walnut, and containing masses of caseous material. The cow was examined and the udder seemed normal, yet inguinal and intraperitoneal inoculation of two rabbits with a mixture of milk and cream gave positive results in both inguinal inoculations and one peritoneal. The caseous material from the nodules of the girl's leg injected into the peritoneum of a rabbit produced tuberculosis peritonitis and death in about three weeks. The family was using milk from one cow only at the time the application was made.

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[1] L. Pfeiffer, in Zeitschr. f. Hygiene, Band 3, page 209, 1888.

[2] Omaha Clinic, February, 1896.

A somewhat similar case was recorded by Coppez.[1]

A girl 17 years old had a wound on the palmar aspect of the third finger between the second and third phalanx, which became infected with tubercle bacilli during milking. The original lesions gave rise, within six months, to over thirty-five subcutaneous abscesses situated in different parts of the body. There were two on the right hand, four on the elbow, two on the shoulder blade, several on the right cheek, two on the left palm, one on the back of the neck, a dozen on the buttocks and thighs, four on the left leg, three on the sole of one foot, and one on the big toe. Most of these were curetted and iodoform applied six months after the beginning of the disease. Subsequently more appeared—in all from sixty to sixty-six. The author describes the appearance of these foci as follows:

At a certain point, always in the neighborhood of a preexisting focus, a thickening of the subcutaneous tissue appeared, associated with increased heat of the skin and pain on pressure. The heat soon disappeared, and a fluctuating livid tumor opened itself and discharged pus, and later a yellowish serum. These various abscesses healed slowly, and within a year all disappeared. At no time could any visceral lesions be recognized, but one eye became involved. The nature of the affection was demonstrated by inserting some pus from an abscess into the eye of a rabbit. There was but slight reaction at first. Subsequently the whole eye became diseased, the lymph nodes of the neck being greatly enlarged. After several months death ensued.

A third case of tuberculosis communicated by innoculation with infected milk was reported by Priester.[2]

A young man employed on the docks, tried to remove a number of tattoos from his hands and forearms by introducing milk into the tattoed parts by means of needle punctures. This operation was repeated several times. Later there appeared on the back of both hands, at points which had been treated on the same day, bright red spots the size of millet seeds, containing a yellow center. Pus was evacuated from several modules. These were found to be lupus modules (tuberculosis of the skin) in which giant cells were demonstrated. The diseased parts were cut out and the wounds healed without a recurrence of the trouble.

Tscherning, of Copenhagen, treated a veterinarian whose finger had been wounded in making a postmortem examination of a tuberculous cow. Three weeks after the accident, the slight wound having already healed, the surrounding tissues became swollen, and a little later a suppurating ulcer formed. Notwithstanding an appropriate treatment, the local disease became worse and it was necessary to excise all of the swollen tissue. Microscopic examination demonstrated tubercles with bacilli. The patient recovered without further development of the disease.[3]

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[1] Cited by Theobald Smith in The Journal of Experimental Medicine, III, 505, from Rev. gen. d'opthalm., XV (1896), 433.

[2] Inauguration Dissertation, Zeitschrift f. Med.-Beamte, 1896, No. 11.

[3] Proceedings of Congress for the Study of Human and Animal Tuberculosis, first session, Paris, 1888, p. 275.

M. T. Naughton, Chicago, Ill., has communicated to this committee the following case, which was observed in his practice:

G. E. W., Pole; age, 34; weight, 170 pounds; healthy looking man; butcher by occupation. Family history negative. Father of three healthy children. Has no recollection of having been previously sick. On May 3, 1899, while cleaning cattle viscera, he fell and a stationary meat hook upon which hearts and lungs are hung penetrated through the right hand between the second and third metacarpal bones. A tendo vaginitis resulted, with some lymphangitis of the arm. He received the usual treatment for an infected wound and apparently made a good recovery, with, however, some limited motion of the fingers and a sensitive scar at the site of puncture. Four months afterwards an abscess formed in the axilla, which was cleaned out and tubercle bacilli were demonstrated in the broken-down gland tissue. At this time there was no soreness in the arm lymphatics or elbow gland, but he complained that there had been. In three months afterwards, or seven months from the original accident, he died from pulmonary tuberculosis.

These are very clear cases and could be multiplied if necessary to add strength to the evidence. These cases demonstrate the susceptibility of man to infection by bovine bacilli inoculated into the skin or subcutaneously. Not only were local lesions produced, but in some cases the disease was generalized and ended in death. The value of such cases of inoculation in demonstrating the susceptibility of man has been questioned on the ground that the lesions resulting from inoculation of the skin are usually slight and remain localized. While it is true they remain localized in most cases, they have sometimes been attended by fatal results, and in all cases appear to be at least as serious as similar inoculations with the human bacillus. The human bacillus is known to be pathogenic for man and it causes one of the most fatal of human diseases. Now, if the bovine bacillus when inoculated in the skin produces at least as serious results as the human bacillus we have a right to conclude that mankind is equally susceptible to the bovine as to the human form of contagion.

It is reported that one of the foreign delegates said in the British congress that the inoculation of man from animals is a different thing from infection by way of the alimentary tract. While this may be admitted, it is nevertheless true that the human bacillus, which may infect man by way of the alimentary tract, is only inoculated in the skin with difficulty, as is shown by the insignificant lesions which usually follow inoculations in making autopsies and dissections. In other words, the alimentary tract appears to be a more favorable route of entrance for the human bacillus than is the skin, and consequently if the bovine bacillus is able to enter the body by means of skin inoculations, there is every reason to believe that it may also enter by way of the alimentary tract.

These very clear cases appear to demonstrate the communicability of bovine tuberculosis to man and to indicate that the bacilli from a bovine source are at least as virulent for man as are bacilli from a human subject. It will not do to put these cases aside, saying that such inoculations are another matter from intestinal infection, because the great point to be decided is the susceptibility of man to the bovine bacillus; and it will be observed that Koch proposes in testing the virulence of bacilli from the human subject to do this by subcutaneous inoculations in cattle. If such inoculations are a proper test of susceptibility in the one case why are they not equally so in the other?

TUBERCULOSIS IN MAN BELIEVED TO HAVE BEEN CAUSED BY INGESTION OF MILK FROM TUBERCULOUS COWS.

The second class of evidence to which your committee would refer is the clinical observation of individuals infected by the ingestion of milk. One of these frequently cited is a case reported by Ollivier to the Paris Academy of Medicine.[1] Twelve girls contracted tuberculosis in a young ladies' boarding school. Of these five died. From the fact that the sick and deceased girls were descended from healthy ancestors and, above all doubt, showed the phenomena of intestinal tuberculosis, there was suspicion of infection with the food. Full confirmation of this suspicion was found in the slaughter of a cow which for a year had served as a source of milk supply for the school. The cow had extensive tuberculosis of the intestines and udder. This case has particular value because of the number of persons affected, the fact that they had intestinal tuberculosis, and the demonstration of udder tuberculosis in the cow.

Another case is cited by T. Percy C. Kirkpatrick.[2] This was the case of a daughter of a Dr. Gosse, of Geneva, reported by himself. The girl up to the age of 17 had been quite healthy and had no history of hereditary taint or predisposition to tuberculosis. Early in 1893 she became ill, with more or less vague and undefined symptoms, and died in some ten months. Gosse performed a postmortem examination, and discovered extensive tuberculosis of the mesenteric glands and abdominal viscera. When trying to find the source of infection in this case, Gosse's attention was drawn to a small farm which he possessed in the country which he had been accustomed to visit on Sundays with his daughter, and one of her chief delights was to drink milk from the cows there. On examination 4 of the 5 cows were tubercular and 2 had disease of the udder.

An interesting case was under the care of Thomas M. Rotch in the Children's Hospital, in Boston, in 1893 or 1894. The particulars were sent to Dr. de Schweinitz, of the Bureau of Animal Industry, by Rotch. A boy 7 years old had been drinking a great deal of milk from one cow for about four months before entering the hospital. The cow was

The boy was a case of primary tubercular peritonitis, with effusion. Laparotomy was performed by Dr. Bradford, and a large amount of serous fluid evacuated. The peritoneum was found to be thickly studded with minute tubercles, and the presence of tubercle bacilli was demonstrated. Four years after the operation the boy was found to be perfectly well, and seemed free from tuberculosis.

Lydtin gives the following case:[1] Dr. Stang, of Amorbach, was called to a finely developed 5-year-old boy, the son of healthy parents, with no hereditary taint in their ancestors. The boy died a few weeks later with miliary tuberculosis of the lungs and enormously enlarged tubercular mesenteric glands. At the necropsy it was learned that the boy had habitually drank the milk of a cow which had been killed shortly before he died and which had shown pulmonary tuberculosis.

Mr. Howe, of North Hadley, Mass., lost a son 20 months old from abdominal tuberculosis three months after he paid a week's visit to his uncle and had been fed with milk of the uncle's cow. The cow was killed soon after and proved to have generalized tuberculosis. The child's sickness and wasting began a few weeks after he returned home. He had previously been strong and healthy, as were and are his parents.[2]

A 4-year-old son of Colonel Beecher, of Yonkers, and grandson of Henry Ward Beecher, died March 4, 1894, of tubercular meningitis, and the two Alderney cows which supplied him milk were proved tuberculous by the tuberculin test and postmortem examination. There was no hereditary taint.[3]

A Scotch family, strong and healthy, had a herd of cows which contracted tuberculosis. Two young daughters brought up on the milk died of tuberculosis, while two older brothers, using little or no milk, remained well and hardy.[4]

Dr. Demme, chief physician of the Children's Hospital, Berne, records the cases of four children, born of healthy parents and without tuberculous ancestors either on the paternal or maternal side, who died of intestinal and mesenteric tuberculosis, having consumed for some time milk furnished by tuberculous cows. Among 2,000 tuberculous children treated by Dr. Demme in twenty years, these were the only ones in which he could absolutely exclude the possibility of hereditary taint and all other causes of the disease except milk infection.[5]

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[1] Cited by Law from Report of Veterinary Congress at Brussels, 1883, p. 288. Also cited by Nocard from Compte Rendu of Fourth International Veterinary Congress, Brussels, 1883, p. 188.

[2] Cited by Law, Papers and Addresses, New York State Veterinary College, 1896 to 1898, p. 85.

[3] Loc. cit.

[4] Law, loc. cit., p. 96, from Tuberculosis, National Veterinary Association, London, 1883.

[5] Nocard, Les Tuberculoses Animales, p. 123.

Von Ruck records the following case, which he considers almost conclusive:[1]

M., age 33, weight 180 pounds, was treated by his family physician about six weeks for what was supposed to be typhoid fever. Growing worse when convalescence was looked for, Von Ruck was called in consultation. Diagnosis of acute miliary tuberculosis was soon established. The autopsy showed the usual dissemination of the tubercular process, but no old focus was found in chest or abdomen, which only were permitted to be examined. Family and personal history good and the source and mode of infection remained for the time obscure.

A few days after M.'s death, Von Ruck was called to see his nearly 1 year old child on account of fever and diarrhea, which yielded to treatment, but the child did not recover its former good health. Gradually symptoms of meningitis developed and the child died. No post-mortem was permitted, but there was no doubt of the tubercular character of the meningitis. Infection from father was not probable, the child having been removed from the house at an early period of his illness.

The milk which the child had received came from a Jersey cow, and no other had been used up to the time the diet was changed on account of the diarrheal attack. The father had drunk largely of this cow's milk, taking a pint and sometimes a quart twice a day, warm at the time of milking, and this cow's milk was given him exclusively during his entire illness. On examination one of the cow's teats was found to be shrunken, it was said to yield little milk, and several months before the milk was occasionally bloody. There was a hard, irregular lump on the same side of the udder. When the cow was killed, several months later, there was found extensive tuberculosis in the lungs and peritoneal cavity, and the lump in the udder contained a caseous center, which on examination showed numerous well-stained tubercle bacilli.

These are examples of clinical evidence which might be greatly extended, but all are, of course, open to the objection that we do not know absolutely that the disease was caused by the bovine bacillus. However, the occurrence of abdominal tuberculosis soon after the use of milk from tuberculous cows is a coincidence which justifies us in accepting the cases as strong circumstantial evidence, not of themselves demonstrating the communicability of bovine tuberculosis, but, taken with other evidence, making a case which it is difficult to contest.

STATISTICS SHOWING FREQUENCY OF ABDOMINAL TUBERCULOSIS.

The third line of evidence to which we invite attention is the statistical data available from various parts of the world.

Thorne, in the Harben lectures for 1898, shows from the statistics of England and Wales that between the periods 1851–1860 and 1891–1895 there has been a reduction of the mortality at all ages from phthisis of 45.4 per cent, while from all forms of tuberculosis the reduction has been distinctly less, namely, 39.1 per cent. Taking that form of disease registered under the name of "tabes mesenterica," the reduction at all ages has been but 8.5 per cent; under 5 years of age the reduction has been but 3 per cent; while under 1 year of age there has been an actual increase of 27.7 per cent. This is the milk-drinking age, and the increase of the mortality is very significant at a time when phthisis has been so remarkably reduced. So instructive are these statistics that we reproduce here Thorne's table showing the mortality from this disease:

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[1] Journal of Tuberculosis, April, 1899, p. 64.

England and Wales.—Mortality from tabes mesenterica in several periods, 1851–1895.

Period.	Per million living (all ages).	Per million births (under 1 year).	Per million living (under 5 years).
1851-1860	260	3,169	1,625
1861-1870	295	3,800	1,856
1871-1880	318	4,467	2,028
1881-1885	289	4,356	1,852
1886-1890	265	4,462	1,764
1891-1895	238	4,046	1,577
Reduction or increase per cent between 1851-1860 and 1891-1895	−8.5	+27.7	−3.0

The conclusions which naturally follow from these statistics are so different from the opinions of many men that numerous attempts have been made to counteract them. Some have held that the cases returned under "tabes mesenterica" could not be relied upon as abdominal tuberculosis. An examination of the evidence presented leads your committee to the conclusion that this point is not well taken.

Still[1] has recorded the results of 769 autopsies on children under 12 years of age at the Hospital for Sick Children, Great Ormonde street. Two hundred and sixty-nine cases were found showing tuberculous lesions. In those in which the channel of infection could be made out with some certainty the primary infection was as follows: Lung, 105; intestine, 53; ear, 9; bones or joints, 5; that is, the intestinal infections were to the others as 1 to 2.1. With the class of cases where death was caused by some other disease and where tuberculosis was either arrested in an early stage or had not progressed beyond the initial stage, affording almost indisputable evidence of the methods of infection, the infections were thus: By the lung, 26; by the intestine, 16; by the ear, 1. Here the intestinal infections were to the others as 1 to 1.7. In the English statistics the cases of tabes mesenterica in children of 5 years and under are to the other forms of tuberculosis as 1 to 1.6. Still's observations are, therefore, a singular indorsement of the accuracy of the returns under the name of tabes mesenterica, and as the ages of the children covered by his autopsies were 12 years and under, he has really found a larger percentage of intestinal infection than is indicated by the statistics.

Also J. Walter Carr refers to statistics of necropsies on tuberculous children at the Victoria Hospital.[2] He found 79 in which the disease most probably started in the chest and 20 in which it seemed to have begun in the abdomen. Here the relation between the two forms of infection is 1 to 4. In 26 children with early or limited tuberculosis, the thorax was alone affected in 12 cases and the abdomen in 7, being in the proportion of 1 to 1.7. Of 53 tuberculous children under 2 years of age the disease most probably began in the chest in 43, and in only 5 certainly in the abdomen, the proportion in this case being as 1 to 8.4. Out of 25 children over 5 years of age the disease began in the chest in 12 and in the abdomen in 6, the relation being as 1 to 2.

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[1] British Medical Journal, August 19, 1899, p. 455.

[2] British Medical Journal, September 2, 1899, p. 626.

Shennon[1] collected data from postmortem examinations at the Royal Hospital for Sick Children, Edinburgh, of 355 cases of tuberculosis, in 331 of which he was able to determine the channel of infection. In 67.7 per cent it was respiratory, in 28.1 per cent it was alimentary. This is as 1 to 2.3.

These postmortem examinations, all from English sources, may be accepted as fairly representative of the results of the postmortem room, and they sustain Thorne's contention that the returns in England of tabes mesenterica represent with reasonable accuracy the abdominal tuberculosis of children in that country. It may be added that in Still's most recent paper[2] he states that "it would seem, therefore, that at any rate amongst hospital patients in London nearly one-third of the child mortality is due to tuberculosis; and although such an estimate may, for various reasons, be too high when applied to the whole child mortality of this city, it seems almost certain that the average given by the registrar-general's statistics is far too low. During the five years 1891 to 1895 the average number of deaths per annum from all causes amongst children up to the age of 10 years in this city was 36,349; out of these the average number of children certified each year as having died of tuberculosis was 3,335. The evidence of postmortem statistics makes it practically certain that a very much larger number than this died of tuberculous diseases, and probably we should be well within the mark if we said that at least 6,000 children die every year in London alone from tuberculosis." This being the case, and the proportion between tabes mesenterica and other forms of tuberculosis remaining the same, there must have been nearly twice as many cases of intestinal tuberculosis in London as were recorded by the registrar-general; but as tabes mesenterica is one of the most obscure forms of the disease, the probability is that more children affected with this form of tuberculosis were otherwise reported than was the case with phthisis, tubercular meningitis, and other forms of tuberculosis that were more easily diagnosed. At any rate, it may be accepted as certain that the evidence so far presented has sustained Thorne's conclusions in regard to tabes mesenterica. This being the case, your committee deems it

Deaths from tuberculous diseases, England and Wales, for the year 1898.

[Population 31,397,078.]

Form of disease.	Under 1 year.	Under 5 years.	Under 10 years.	Under 15 years.	Under 20 years.	Under 25 years.	Under 35 years.	All ages.
Tabes mesenterica	3,265	5,050	5,369	5,555	5,725	5,850	6,050	6,357
Tubercular meningitis (acute hydrocephalus)	1,985	4,904	5,791	6,147	6,339	6,451	6,573	6,681
Other forms of tuberculosis, scrofula	1,319	2,585	3,035	3,399	3,851	4,233	4,807	5,766
Total other than phthisis	6,569	12,539	14,195	15,101	15,915	16,534	17,430	18,804
Phthisis	493	1,491	2,126	3,127	6,437	11,212	21,007	41,335
Total tuberculosis	7,062	14,030	16,321	18,228	22,352	27,746	38,437	60,139

Deaths from tuberculous diseases in Scotland for the year 1898.

[Population, 4,249,946.]

Form of disease.	Under 1 year.	Under 15 years.	Under 25 years.	All ages.
Tabes mesenterica	239	788	872	947
Tubercular meningitis	350	1,212	1,263	1,288
Other forms of tuberculosis, scrofula	121	459	605	815
Total other than phthisis	710	2,459	2,740	3,050
Phthisis	78	720	2,675	7,090
Total tuberculosis	788	3,179	5,415	10,140

Deaths from tuberculous diseases in London for the year 1898.

[Estimated population, 4,504,766.]

Form of disease.	Under 1 year.	Under 5 years.	Under 10 years.	Under 15 years.	Under 20 years.	Under 25 years.	Under 35 years.	All ages.
Tabes mesenterica	602	838	884	903	915	930	958	997
Tubercular meningitis	397	989	1,128	1,177	1,197	1,213	1,232	1,250
Other forms of tuberculosis, scrofula	285	555	639	693	750	791	865	983
Total other than phthisis	1,284	2,382	2,651	2,773	2,862	2,934	3,055	3,230
Phthisis	98	308	385	496	851	1,517	3,272	7,812
Total tuberculosis	1,382	2,690	3,036	3,269	3,713	4,451	6,327	11,042

Deaths from tuberculous diseases in Berlin for the year 1898.

[Population, June 30, 1,768,624.]

Form of disease.	Under 1 year.	Under 5 years.	Under 10 years.	Under 15 years.	Under 20 years.	Under 25 years.	Under 35 years.	All ages.
Tabes mesenterica	4	14	23	29	30	35	45	71
Tubercular meningitis	39	163	196	205	210	216	225	237
Other forms of tuberculosis, scrofula	20	34	38	40	40	47	62	88
Total other than phthisis	63	211	257	274	280	298	332	396
Phthisis	78	246	300	360	559	983	1,867	3,553
Total tuberculosis	141	457	557	634	839	1,281	2,199	3,949

Deaths from tuberculous diseases in Paris for the year 1897.

[Population, 1896, 2,511,629.]

Form of disease.	Under 1 year.	Under 5 years.	Under 10 years.	Under 15 years.	Under 20 years.	Under 25 years.	Under 35 years.	All ages
Tabes mesenterica	4	21	34	47	55	61	83	1
Tubercular meningitis	140	633	802	837	857	892	943	9
Other forms of tuberculosis, scrofula	50	143	174	196	248	346	567	1,
Total other than phthisis	194	797	1,010	1,080	1,160	1,299	1,593	2,3
Phthisis	48	244	325	456	1,038	1,955	4,296	9,2
Total tuberculosis	242	1,041	1,335	1,536	2,198	3,254	5,889	11,6

Deaths from tuberculous diseases in New York City for the year 1899.

[Estimated population, 3,550,053.]

Form of disease.	Under 1 year.	Under 5 years.	Under 10 years.	Under 15 years.	Under 20 years.	Under 25 years.	Under 35 years.	All ages.
Tabes mesenterica	34	40	40	40	40	40	42	
Tubercular meningitis	281	676	750	766	781	795	819	8
Other forms of tuberculosis, scrofula	79	175	211	233	272	328	437	6
Total other than phthisis	394	891	1,001	1,039	1,093	1,163	1,298	1,5
Phthisis	98	220	269	362	778	1,751	4,316	8,0
Total tuberculosis	492	1,111	1,270	1,401	1,871	2,914	5,614	9,5

Deaths from tuberculous diseases in Boston for the year 1900.

[Population, 560,892.]

Form of disease.	Under 1 year.	Under 15 years.	Under 25 years.	All ages
Tabes mesenterica	2	10	12	
Tubercular meningitis	43	117	123	1
Other forms of tuberculosis, scrofula	20	51	79	1
Total other than phthisis	65	178	214	3
Phthisis	11	52	318	1,2
Total tuberculosis	76	230	532	1,5

Deaths from tuberculous diseases in Chicago for the years 1897 and 1898.

[Population, 1897, 1,619,226; 1898, 1,650,000.]

Form of disease.	Under 1 year.	Under 5 years.	Under 10 years.	Under 20 years.	Under 30 years.	All ages.
Tuberculosis, mesenteric (1897) and peritoneal (1898)	3	12	16	29	36	7
Tuberculosis, cerebral	75	190	225	249	270	2
Tuberculosis, other organs	10	88	110	158	248	4
Total other than phthisis	118	290	351	436	554	8
Phthisis	66	196	250	700	2,061	4,5
Total tuberculosis	184	486	601	1,136	2,615	5,4

To show more clearly the numerical relation of the different forms of tuberculosis, a series of tables of percentages have been compiled, corresponding with those just given, showing the number of deaths.

Deaths from tuberculosis in England and Wales for the year 1898.

[Percentage of each form.]

Form of disease.	Under 1 year.	Under 5 years.	Under 10 years.	Under 15 years.	Under 20 years.	Under 25 years.	Under 35 years.	All ages.
Tabes mesenterica	46.23	36.00	32.90	30.48	25.61	21.08	15.74	10.57
Tubercular meningitis (acute hydrocephalus)	28.11	34.95	35.48	33.72	28.36	23.25	17.10	11.11
Other forms of tuberculosis, scrofula	18.68	18.42	18.59	18.65	17.23	15.26	12.51	9.59
Phthisis	6.98	10.63	13.03	17.15	28.80	40.41	54.65	68.73
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Deaths from tuberculosis in Scotland for the year 1898.

[Percentage of each form.]

Form of disease.	Under 1 year.	Under 15 years.	Under 25 years.	All ages.
Tabes mesenterica	30.33	24.79	16.10	9.34
Tubercular meningitis	44.42	38.13	23.33	12.70
Other forms of tuberculosis, scrofula	15.36	14.44	11.17	8.04
Phthisis	9.89	22.64	49.40	69.92
Total	100.00	100.00	100.00	100.00

Deaths from tuberculosis in London for the year 1898.

[Percentage of each form.]

Form of disease.	Under 1 year.	Under 15 years.	Under 25 years.	All ages.
Tabes mesenterica	43.56	27.62	20.89	9.03
Tubercular meningitis	28.72	36.01	27.26	11.32
Other forms of tuberculosis, scrofula	20.63	21.20	17.77	8.90
Phthisis	7.09	15.17	34.08	70.75
Total	100.00	100.00	100.00	100.00

Deaths from tuberculosis in Berlin for the year 1898.

[Percentage of each form.]

Form of disease.	Under 1 year.	Under 15 years.	Under 25 years.	All ages.
Tabes mesenterica	2.84	4.57	2.73	1.80
Tubercular meningitis	27.66	32.33	16.86	6.00
Other forms of tuberculosis, scrofula	14.18	6.31	3.67	2.23
Phthisis	55.32	56.79	76.74	89.97
Total	100.00	100.00	100.00	100.00

Deaths from tuberculosis in Paris for the year 1897.

[Percentage of each form.]

Form of disease.	Under 1 year.	Under 15 years.	Under 25 years.	All ages.
Tabes mesenterica	1.65	3.06	1.87	1.3
Tubercular meningitis	57.85	54.49	27.42	8.6
Other forms of tuberculosis, scrofula	20.66	12.76	10.63	10.0
Phthisis	19.84	29.69	60.08	80.0
Total	100.00	100.00	100.00	100.0

Deaths from tuberculosis in New York for the year 1899.

[Percentage of each form.]

Form of disease.	Under 1 year.	Under 15 years.	Under 25 years.	All ages.
Tabes mesenterica	6.91	2.86	1.37	0.4
Tubercular meningitis	57.11	54.68	27.28	9.0
Other forms of tuberculosis, scrofula	16.06	16.62	11.25	6.4
Phthisis	19.92	25.84	60.10	84.0
Total	100.00	100.00	100.00	100.0

Deaths from tuberculosis in Boston for the year 1900.

[Percentage of each form.]

Form of disease.	Under 1 year.	Under 15 years.	Under 25 years.	All ages.
Tabes mesenterica	2.63	4.35	2.26	1.1
Tubercular meningitis	56.58	50.87	23.12	8.3
Other forms of tuberculosis, scrofula	26.32	22.17	14.85	11.4
Phthisis	14.47	22.61	59.77	79.0
Total	100.00	100.00	100.00	100.0

Deaths from tuberculosis in Chicago for the years 1897 and 1898.

[Percentage of each form.]

Form of disease.	Under 1 year.	Under 5 years.	Under 10 years.	Under 20 years.	Under 30 years.	All ages.
Tuberculosis, mesenteric (1897) and peritoneal (1898)	1.63	2.47	2.66	2.55	1.38	1.0
Tuberculosis, cerebral	40.76	39.09	37.44	21.92	10.33	5.4
Tuberculosis, other organs	21.74	18.11	18.30	13.91	9.48	8.5
Phthisis	35.87	40.33	41.60	61.62	78.81	85.0
Total	100.00	100.00	100.00	100.00	100.00	100.0

NOTE.—In these tables the term tabes mesenterica is believed to cover tuberculosis of the intestines, peritoneum, and abdominal lymphatic glands.

Taking England and Wales, it is seen that in children under 1 year old tabes mesenterica constitutes 46.23 per cent of the total cases of tuberculosis at that age, while phthisis constitutes but 6.98 per ties, however, are quite different, and the number of cases of abdominal tuberculosis returned is very much smaller.

Your committee has added a table compiled from these statistics showing the deaths per million population from the different forms of tuberculosis in England, Wales, and Scotland, and in the cities mentioned. From this table the extreme frequency of intestinal tuberculosis in England and Scotland is made manifest.

Deaths per million population from different forms of tuberculosis.

Form of disease.	England and Wales, 1898.	Scotland, 1898.	London, 1898.	Berlin, 1898.	Paris, 1897.	New York, 1899.	Boston, 1900.	Chicago, 1897–98.
Under 1 year.								
Tabes mesenterica	104	56	134	2	2	10	4	1
Tubercular meningitis	63	82	88	22	56	79	77	23
Other forms of tuberculosis, scrofula	42	29	63	11	20	22	35	12
Phthisis	16	18	22	44	19	28	20	20
Total tuberculosis	225	185	307	79	97	139	136	56
Under 15 years.								*Under 20.*
Tabes mesenterica	177	185	200	16	19	11	18	9
Tubercular meningitis	196	285	261	116	333	216	209	76
Other forms of tuberculosis, scrofula	108	108	154	23	78	66	91	48
Phthisis	100	169	110	203	182	102	93	214
Total tuberculosis	581	747	725	358	612	395	411	347
Under 25 years.								*Under 30.*
Tabes mesenterica	186	205	206	20	24	11	21	11
Tubercular meningitis	205	297	269	122	355	224	219	83
Other forms of tuberculosis, scrofula	135	142	176	26	138	92	141	76
Phthisis	357	629	337	556	778	493	567	630
Total tuberculosis	883	1,274	988	724	1,295	820	948	800
All ages.								
Tabes mesenterica	202	223	221	40	61	13	32	17
Tubercular meningitis	213	303	278	134	398	243	234	90
Other forms of tuberculosis, scrofula	184	192	218	50	465	173	322	141
Phthisis	1,317	1,668	1,734	2,009	3,702	2,258	2,223	1,406
Total tuberculosis	1,916	2,386	2,451	2,233	4,626	2,687	2,811	1,654

The one point which it is desired to impress at this time is that abdominal tuberculosis is not so rare that it can be properly ignored and that the statistics of some countries show a remarkable number of cases.

POSTMORTEM EXAMINATIONS SHOWING INTESTINAL TUBERCULOSIS.

The fourth line of evidence bearing upon this question is obtained from postmortem examinations.

Koch says that among many cases of tuberculosis examined after death he remembered having seen primary tuberculosis of the intestine only twice. Among the great postmortem material of the Charité Hospital, in Berlin, 10 cases of primary tuberculosis of the intestine occurred in five years. Among 933 cases of tuberculosis in children at the Emperor and Empress Frederick's Hospital for Children, Baginsky never found tuberculosis of the intestines without simultaneous disease of the lungs and the bronchial glands. Among 3,104 postmortems of tubercular children, Biedert observed only 16 cases of primary tuberculosis of the intestine.

Are these selected statistics, or are the results of postmortems in Germany so different from what they are in England?

In 269 autopsies of tuberculous children, Still determined the channel of infection with some degree of certainty in 216 cases, and in 63 of these primary infection was probably through the intestine.[1] Carr, in a series of 120 autopsies on tuberculous children at the Chelsea Children's Hospital, found that 16.7 per cent showed evidence of primary abdominal infection.[2] Guthrie, at the Paddington Green Children's Hospital, in a series of 77 cases, found evidence of primary intestinal infection in 19 cases.[3] Shennon collected 355 cases of tuberculosis from the postmortems at the Royal Hospital for Sick Children, Edinburgh, in 331 of which he was able to determine the channel of infection. In 28.1 per cent of these cases it was alimentary.[4] Bollinger, in his address at the International Tuberculosis Congress at Berlin in 1899, quoted with approval the autopsies by Heller (Kiel) of 248 tuberculous children, which showed, in 45.5 per cent of the cases, tuberculosis of the mesenteric glands. From these it was concluded that milk played a leading role in the so-called transmitted tuberculosis of children.

Northrup[5] refers to 125 postmortems at the New York Foundling Asylum on tuberculous children, in 34 of which the bronchial nodes were large and cheesy, likewise the mesenteric nodes; the lungs contained tubercles, as did the liver, spleen, kidneys, and meninges. The primary seat of infection in these was not clear. In the remaining 91, 3 were primarily of mesenteric lymph node infection, and 88 were primarily of bronchial node infection.

G. Sims Woodhead, in 1894, writing on channels of infection in tuberculosis,[6] said:

> I have seen in case after case in children, and in animals fed on tuberculous material, the lungs markedly affected, but in a large proportion of these cases it has been possible to trace the course of invasion back from an old caseous or calcareous mesenteric gland, through the chain of retroperitoneal glands, up through the diaphragm to the posterior mediastinal and bronchial glands, and so on to the lung. I have not seen this in a few cases only, but in dozens of children, in a few adults, and in many animals.

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[1] The Practitioner, July, 1901.

[2] Quoted by Still from Transactions of Medical Society of London, 1894, p. 292.

[3] Quoted by Still from the Lancet, 1899, Vol. I, p. 286.

Sheridan Delepine, Proctor Professor of Pathology, Owens College, in a lecture on tuberculosis and the milk supply,[1] said:

> A very striking proof of the frequency of infection through the intestine fell under my notice six years ago. Dr. Simcock was investigating in my laboratory the pathology of chronic wasting of children due to improper feeding. He selected 13 cases out of many more in which there was no evidence of tuberculosis in the parents or in the various organs of the children as examined in the postmortem room. He considered these cases free from tuberculosis. I was not however, quite convinced. We carefully examined the mesenteric glands of all these children with the object of discovering whether some might not be tuberculous. In 2 of these cases the mesenteric glands showed clear tuberculous lesions under the microscope, and in 5 more the mesenteric glands presented lesions suggesting the possibility of incipient tuberculosis. The presence of 2 clear cases of tuberculosis among 13 cases carefully selected as free from tuberculosis is specially significant.

These quotations are sufficient to make it clear that primary intestinal infection is much more frequent than is indicated by Koch's paper. After expressing himself "that a case of tuberculosis has been caused by alimenta can be assumed with certainty only when the intestine suffers first—i. e., when so-called primary tuberculosis of the intestine is found"—he first endeavors to show that such cases are extremely rare, and then proceeds to contradict his first assertion that it can be assumed with certainty to have been caused by alimenta, by saying "it is by no means certain that such cases are due to infection by bovine tuberculosis, it being just as likely that they were caused by the widely propagated bacilli of human tuberculosis which may have got into the digestive canal by some way or other, for instance, by swallowing saliva of the mouth."

It is clear that dust and bacilli inhaled with the air are deposited upon the mucous membrane of the nose, pharynx, and trachea, and that such inhaled particles must be swallowed unconsciously, as pointed out by Lord Lister in his letter to the British Medical Journal (August 3, 1901); also that persons infected with pulmonary tuberculosis swallow enormous numbers of bacilli. Still it is known from postmortem examinations that pulmonary tuberculosis is more common than intestinal, and that a considerable proportion (placed by Lord Lister at one-third) of the people who die of pulmonary tuberculosis escape intestinal infection, although they are proved susceptible and have passed into their stomachs great quantities of bacilli daily for months or years. What is the explanation of this? With even the inhaled bacilli more likely to follow the digestive than the respiratory tract, why is not intestinal tuberculosis much more common than the pulmonary form?

Writers have attempted to explain this by supposing that the intestine is an unfavorable position for the bacilli to gain entrance to the tissues. Judging by the ease with which animals are infected by bovine bacilli through the digestive tract, this explanation is hardly tenable. It would appear rather that the true cause of the phenomenon is the lack of pathogenic power in the human bacillus, which has been shown experimentally on animals, and that this lack of virulence makes it difficult for human bacilli to withstand the gastric juice and other unfavorable conditions and have sufficient activity remaining to infect the body after reaching the intestine. On the other hand, the more virulent bovine germ would be more likely to maintain its activity and would be more apt to produce infection with a smaller number of germs.

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[1] Lancet, London, Sept. 17, 1898, p. 733.

The fact is that in some countries intestinal tuberculosis is comparatively rare, even with children. The statistics of Berlin, Paris, New York, Boston, and Chicago prove this, although pulmonary tuberculosis is very prevalent. Surely the air and the habitations of these places must contain a maximum number of bacilli from the human disease. If intestinal tuberculosis is caused by such human bacilli, either inhaled or taken into the mouth in other ways, why is there not as much intestinal tuberculosis in those cities as in England and Scotland? Are British babies the only ones that swallow the inhaled bacilli? How can we explain the occurrence of 134 cases of tabes mesenterica per million inhabitants in children under one year in London as against only 2 cases in Paris, when there are more than twice as many cases of pulmonary tuberculosis per million inhabitants in Paris as in London? We see here, as in the statistics brought forward by Thorne, that there is no relation between intestinal tuberculosis and pulmonary tuberculosis; in other words, that infection by human bacilli apparently plays a very subordinate part in the causation of tuberculosis of the abdominal organs. This conclusion we think is legitimate and clearly follows from the statistics presented.

Why is tabes mesenterica so prevalent in Great Britain? It is a question which can only properly be answered by careful inquiry in that country. Tuberculosis is very common among the cattle there, but possibly not more so than on the continent. More attention appears, however, to be given to the inspection of meat in Berlin and Paris than in London, and possibly the same may be true of milk. Meat is more frequently eaten underdone in London, and milk is probably less frequently sterilized. In the United States we have far less tuberculosis among cattle, and also an efficient Federal meat inspection. Our milch cows do not show more than one-tenth, and our beef cattle not more than one one-hundredth, of the tuberculosis which is found in Great Britain.

mediastinal glands, and the lungs as there is for inhaled bacilli to infect the intestine. When all cases of pulmonary tuberculosis are cited as necessarily due to inhaled bacilli and as not by any possibility due to infection with the food, an error is committed.

G. Sims Woodhead several years ago pointed out how frequently bacilli gained entrance through the lymphoid tissue of the tonsil, and St. Clair Thomson has recently expressed the opinion that all germs are deposited before the air reaches the larynx and that infection most probably occurs through the lymphoid tissue of the naso-pharynx and pharynx. He says: "There appears to be no justification for the generally accepted idea that the bacillus is inhaled directly into the pulmonary alveoli."[1]

G. Sims Woodhead says of infection through the pharynx: "In many of these cases the process can be traced from the glands in the tonsil down into the neck and so on to the thorax by the mediastinal and post-sternal glands and by the intercostal lymphatics and glands, and it is interesting in such cases to note how the lungs may be perfectly healthy until the glands at their root or in the pleura have become distinctly affected." Again he says: "We have also an example of secondary affection of the lungs following tubercle of the pharyngeal tonsilar structures, through the glands in the neck, then those in the thorax, and finally to the lung itself, in the examples that have already been given in the infection of the pig by tuberculous milk, etc. Moreover, I have seen a similar line of invasion in children."[2]

Koch tells us that in an experiment in which sputum was fed to 6 pigs there was no trace of tuberculosis found postmortem "except here and there little nodules in the lymphatic glands of the neck, and in one case a few gray nodules in the lungs." It appears, then, that he did get some infection in the pigs by feeding human sputum, and that the lesions, far from being in the intestines, were in the neck and lungs.

Referring to the pigs which had eaten bacilli of bovine tuberculosis, Koch says they "had, without exception, severe tubercular diseases, especially tubercular infiltration of the greatly enlarged lymphatic glands of the neck and of the mesenteric glands, and, also, extensive tuberculosis of the lungs and spleen." There is nothing said about primary tuberculous lesions of the intestines, and we are forced to the conclusion that his own postmortem notes do not sustain his contention that such lesions are essential in cases of infection through contaminated food. Lord Lister is said to have pointed out in his reply to Koch that if primary intestinal tuberculosis were rare in children, mesenteric tuberculosis was common, and said that the interpretation seemed to him to be that the bacilli passed through the intestinal mucous membrane without causing any obvious lesion and were arrested in the glands.[1] This interpretation seems to be accepted by most pathologists, and is certainly in harmony with the results of feeding experiments with animals. Most forms of primary abdominal tuberculosis, whether affecting the intestines, peritoneum, lymphatic glands, spleen, or liver, are, therefore, in all probability due to infection through the intestine. More than this, many cases of neck and lung infection are due to bacilli taken with the food. Ravenel has recently said, "Dr. Pearson and I have held for a long time that food tuberculosis may appear first in the lungs or cervical glands. I have just received a letter from Dr. Pearson saying that he has killed two cows fed on tuberculosis matter, and 'both had extensively tubercular lungs, and lesions nowhere else. The postpharyngeal lymph glands were normal. Neither had the slightest disease along the digestive tract.' We have made similar observations repeatedly on dogs and pigs."[2] Observations of the same kind have been frequently made in the experiments of the Bureau of Animal Industry.

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[1] The Practitioner, July, 1901.

[2] Lancet, vol. 2, 1894, pp. 957-960.

If, therefore, it is true and may be admitted that some cases of intestinal tuberculosis are caused by bacilli inhaled or which reach the saliva from the affected lung, it is also true that in even a larger number of cases the respiratory organs are infected by bacilli taken with the food. Certainly this is the case with animals, as shown by feeding experiments, and probably also with the human subject. The location of the lesions is therefore a very uncertain guide in many cases as to the channel by which the infection entered the body.

The new method of diagnosis which Koch desires us to accept—namely, the culture of the bacillus and the subcutaneous inoculation of cattle with the cultures—is yet of doubtful reliability. It has been assumed by Smith and Koch that the bacilli of bovine tuberculosis, if they produce disease in man, would retain their peculiar characteristics indefinitely, so that when isolated from the human lesions and inoculated in cattle they could be identified by their virulence for bovine animals. This is an assumption which has never been demonstrated. The method may or may not be correct, and it is only reasonable for us to decline to accept it for deciding so important a question until after its efficiency and reliability have been demonstrated. Koch says: "Hitherto nobody could decide with certainty in such a case whether the tuberculosis of the intestine was of human or of animal origin. Now we can diagnose them." It is only just to our own countryman to say that we could make the diagnosis as well after the publication of Theobald Smith's paper three years ago as we can after reading Koch's address. But the method is still in its infancy, and no one has cultivated germs known to be of bovine origin that have existed for some time in the human subject to determine whether or not they retain their distinctive properties. Bacilli from different cases of human tuberculosis differ in virulence, and the extremes of pathogenic power in such bacilli have never yet been established.[1] It is also true that bacilli from bovine sources differ in virulence, and here again the extremes of virulence have never been determined. Moreover, we do not know how much or how soon the bovine bacillus is modified when it propagates itself in human tissues. The experiments of Smith have opened up a wide field and lead to important suggestions, but we can not yet say what conclusions will be reached by experimenting along the suggested lines.

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[1] Jour. of the Amer. Med. Assoc., August 31, 1901, p. 590.

[2] Philadelphia Med. Jour., August 24, 1901, p. 284.

It is to be observed that Koch does not positively answer the question as to the susceptibility of man to bovine tuberculosis, but acknowledges that it "will not admit of absolute decision to-day or to-morrow." He insists that "if such susceptibility really exists, the infection of human beings is but a very rare occurrence," and estimates "the extent of the infection by the milk and flesh of tuberculous cattle, and the butter made of their milk as hardly greater than that of hereditary transmission." This language shows his uncertainty on the great question which he has raised and bearing upon which he has offered so little evidence. If the extent of the infection from bovine sources equals that by hereditary transmission, then the danger exists, it is a real danger, and we should strive to ascertain its exact extent and how much greater it may become.[2]

To ask the medical profession at this time to adopt sweeping generalizations on inconclusive experiments and on mere hypotheses is absurd. To expect that the definite and positive evidence from accidental inoculations, clinical observations, vital statistics, and postmortem records will be discarded in order to adopt such hasty generalizations is ridiculous. More positive evidence will doubtless be forthcoming in the near future, as investigators will not rest until the most exhaustive researches have been made. In the end even this dramatic promulgation of a dangerous doctrine, practically unsupported by facts, will bring good to the cause of sanitation. What we must guard against is the influence of the sensationalists and of those very impressionable persons who are ever ready to accept a new doctrine which comes with the sanction of authority, no matter upon how slight a foundation of fact it rests.

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[1] Lartigan has recently reported the results of interesting investigations on the range of variation of the virulence of tubercle bacilli from various classes of lesions in human beings. (Journal of Medical Research, July, 1901.) He concludes that tubercle bacilli of widely different virulence may exist in different cases of human tuberculosis. One specimen which he encountered presented distinctive features worthy of note. "Its growth was of very slow development, the colonies few in number, and not unlike ground glass, an appearance to which Theobald Smith has referred in connection with tubercle bacilli of bovine origin. When the extreme virulence of this tubercle bacillus for guinea pigs and rabbits is associated with the morphological and cultural peculiarities just noted, the whole closely suggests the bacillus tuberculosis of bovine derivation as described by Smith."

[2] If it were true that man is entirely insusceptible to bovine tuberculosis, it would appear that monkeys, the animals most closely related to man, should also be insusceptible or at least should not be easily infected with bovine bacilli. An experiment of the Bureau of Animal Industry, concluded while this bulletin is going through the press, indicates, on the contrary, that these animals are extremely susceptible to this form of tuberculosis. A baboon inoculated subcutaneously showed an ulcer locally, great enlargement of the axillary glands and, later, symptoms of acute generalized tuberculosis. After death the lungs, liver, and spleen in particular were found filled with tubercles and other organs were more or less involved. Another monkey of a different species, inoculated at the same time, has become greatly emaciated and has probably also contracted the disease.

In this case it is reassuring to find that the British Congress on Tuberculosis not only did not accept the doctrine, but declared that "medical officers of health should continue to use all the powers at their disposal, and relax no effort to prevent the spread of tuberculosis by milk and meat." In this conclusion your committee most emphatically concurs.

O

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY—BULLETIN NO. 34.
D. E. SALMON, D. V. M., Chief of Bureau.

AMERICAN BREEDS OF BEEF CATTLE

WITH

REMARKS ON PEDIGREES.

BY

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Animal Industry,
Washington, D. C., October 1, 1901.

Sir: I have the honor to submit herewith the manuscript of an article on "American breeds of beef cattle, with remarks on pedigrees," by George M. Rommel, expert in animal husbandry of this Bureau, and recommend that it be published as Bulletin No. 34 in the Bureau series.

Respectfully,

D. E. Salmon,
Chief of Bureau.

Hon. James Wilson,
Secretary of Agriculture.

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AMERICAN BREEDS OF BEEF CATTLE.

INTRODUCTION.

Prior to the discovery of America there were no cattle in the Western Hemisphere. On one of his voyages to America Columbus is said to have brought a number of domestic animals with him. Succeeding Spanish explorers followed his lead, and each military expedition that had cavalry as a part of its equipment added to the supply of horses. As the conquerors mingled more closely with the natives and settled down to peaceful pursuits or wandered into the interior, it was but natural that, with the multiplication of domestic animals, many escaped to establish themselves in favorable environment. For these there were grass and water in abundance. There was the opportunity for sowing the seed that produced the native cattle of the West Indies and Mexico, the long-horned herds of Texas, and the wild horses of the Plains.

The start in the South was followed about the middle of the sixteenth century by the Portuguese, who took cattle to Newfoundland and Nova Scotia, and by the introduction of cattle into Acadia and inland New France by the French. These were carried farther into the interior, and it is said that the French missionaries in Illinois about 1750 possessed considerable numbers of cattle, horses, and swine. Cattle were introduced into Virginia shortly after the Jamestown settlement and multiplied rapidly. Legislation which made their killing a crime punishable with death contributed to this result. A bull and three heifers were brought to Plymouth by the ship *Charity* in 1624. New Hampshire received cattle from Denmark, New Netherlands from Holland, and Delaware from Sweden, about the same time. Carolina received her first shipment from England in 1670, while Georgia was the last of the colonies to figure as a market for the English export trade in breeding cattle.

It is a reasonable inference that these cattle represented the best stock in the countries from which the settlers came, but as these first importations were mostly made over one hundred years before the English improvement in cattle breeding set in, they were, of course, of an unimproved type. It is a note of interest that the ship *Charity* sailed from a Devonshire port, and that many other ships to New England in the first few years following sailed from Devon, which, supplemented by the reputation of the "red cattle of New England" that has come down to us, makes it quite possible that these were unimproved Devons. The New Netherlands importations were undoubtedly of a milking breed, but all were in time so hopelessly intercrossed that their identity was lost, and, as a result, our forefathers had the "native cattle" of the Eastern United States.

Such was the foundation. What the native stock was like we can best imagine from the stories of men now old, and from the "scrub" stock that is even yet the eyesore of many American pastures. Blood of Spanish, Swedish, French, Dutch, and English, with, maybe, a dash of buffalo as they wandered westward, gave this stock a cosmopolitan character that was representative, perhaps, but hardly profitable. Lack of care by farmers, with no Bakewell to point the way to improvement, brought about a type of animal that a century has not been able to absorb.

In England and Scotland the situation was slightly better. The age of the country and the scarcity of land made possible and necessary a more thorough system of agricultural operations, and had early brought out the predominant influence of live stock in a well-regulated system of husbandry. However, compared with what we see to-day, conditions were embryonic and crude. Huge, rough, ungainly beasts were the animals whose descendants were to be the winners at Smithfield and Chicago. A fair idea of the cattle that were the typical native stock of Great Britain up to the middle of the eighteenth century may be formed by a study of the noted "Blackwell ox." He was over five years old when killed at Darlington, December 17, 1779.

Weight and dimensions of the Blackwell ox.[a]

WEIGHT.

	St.	lb.	[Pounds.]
Fore quarters	76	7	[1,071]
Hind quarters	76	3	[1,067]
Tallow	11	..	[154]
Total	163	10	[2,292]

DIMENSIONS.

	Ft.	in.
Height at crop	6	---
Height at shoulders	5	9¼
Height at loins	5	8
Height from breast to ground	2	1
Length from horn to rump	9	3½
Breadth over shoulders	2	10½
Breadth across hips	2	10½
Girth before shoulders	9	7½
Girth behind shoulders	10	6
Girth at loins	9	6½

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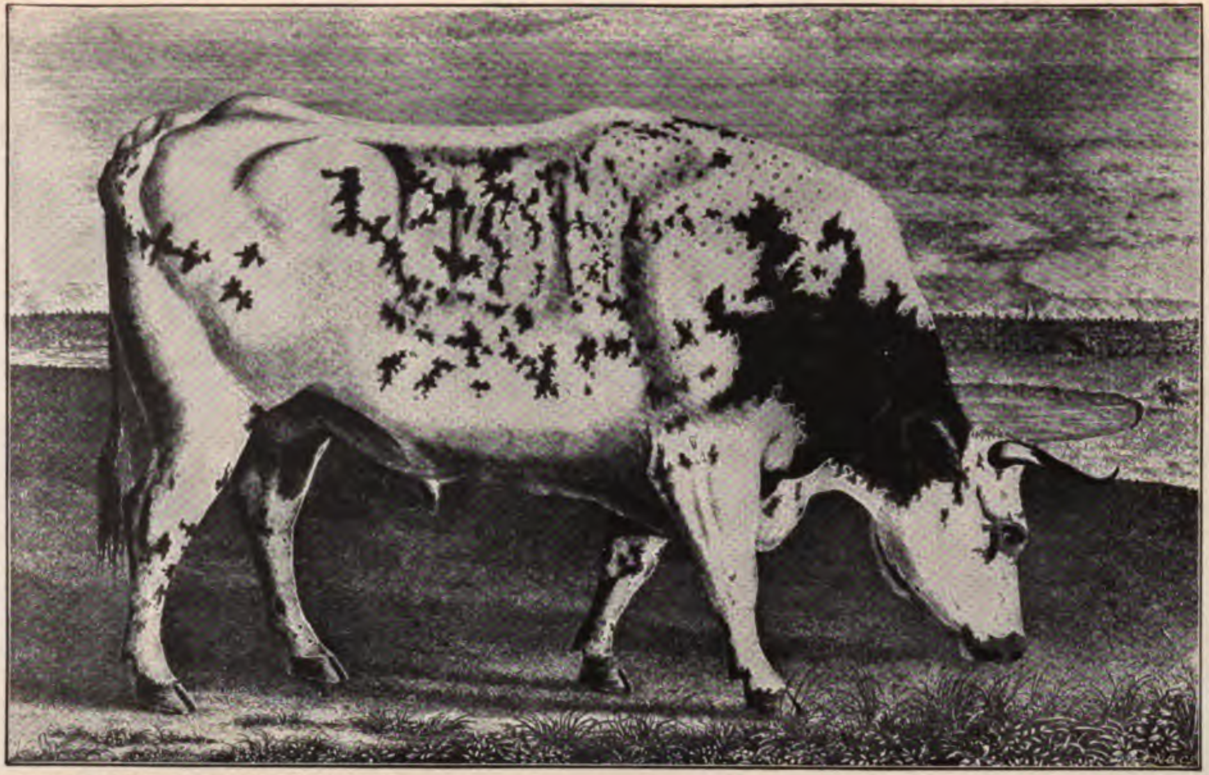
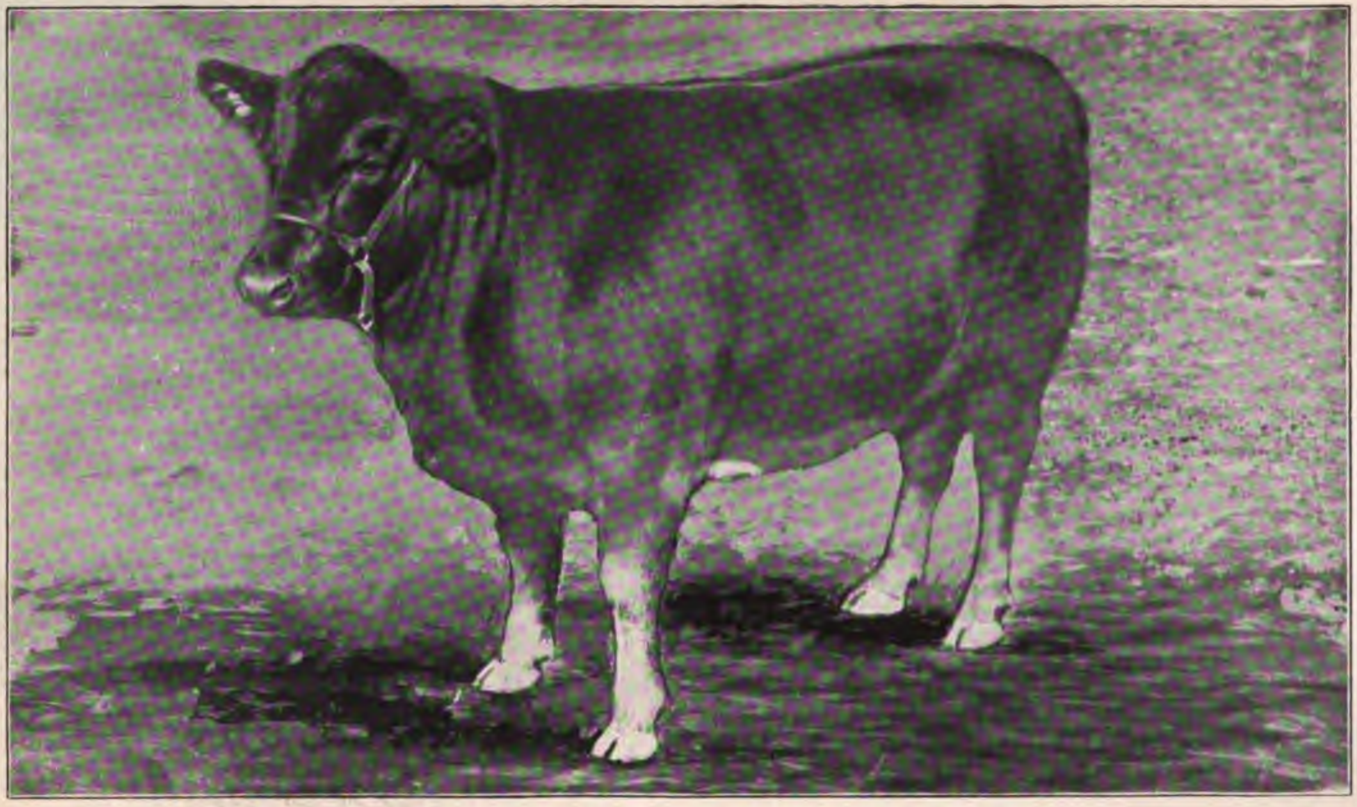
[a] Transactions of the Highland and Agricultural Society of Scotland, 1896.



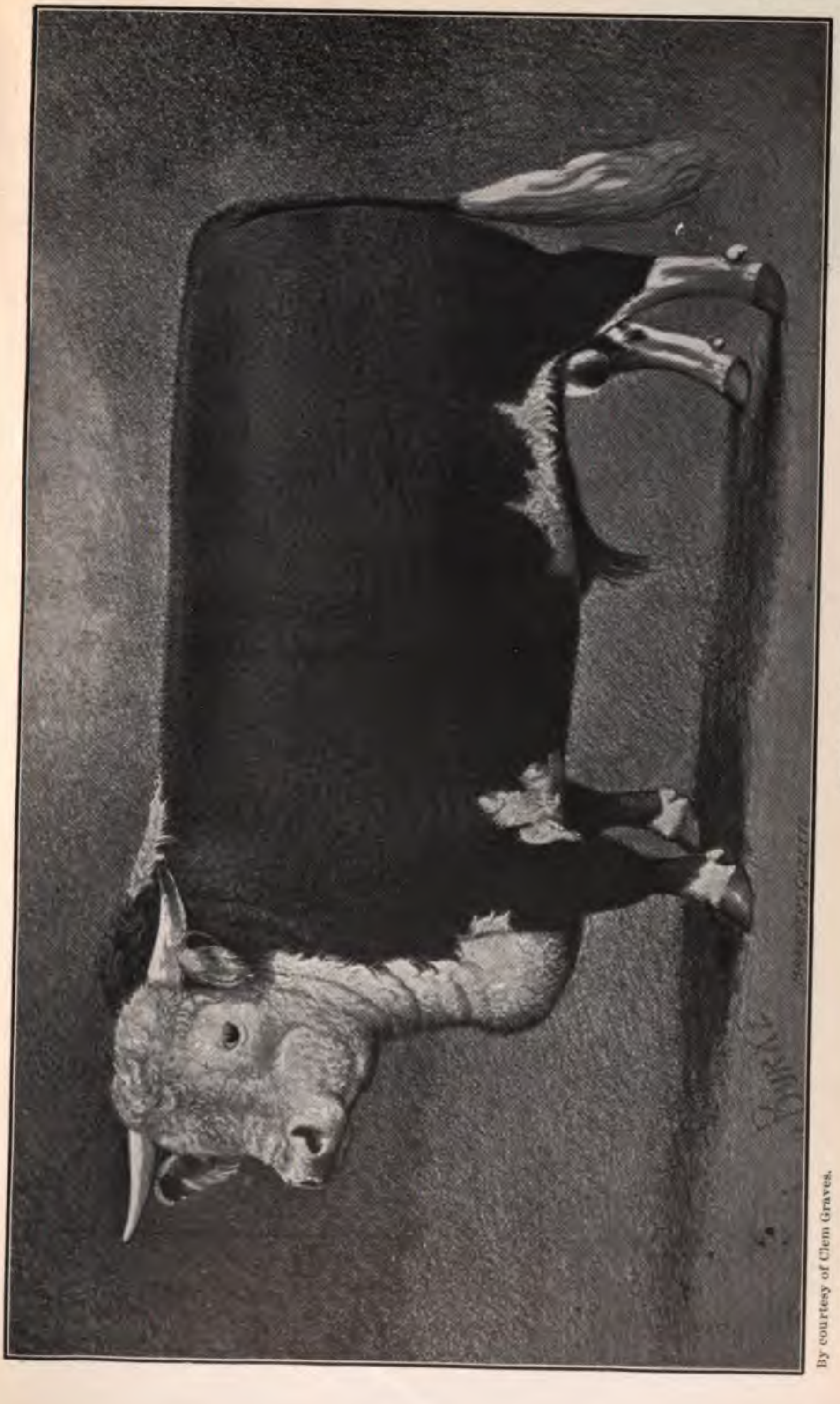
By courtesy of Wm. Blackwood & Sons, Edinburgh.

THE BLACKWELL OX.



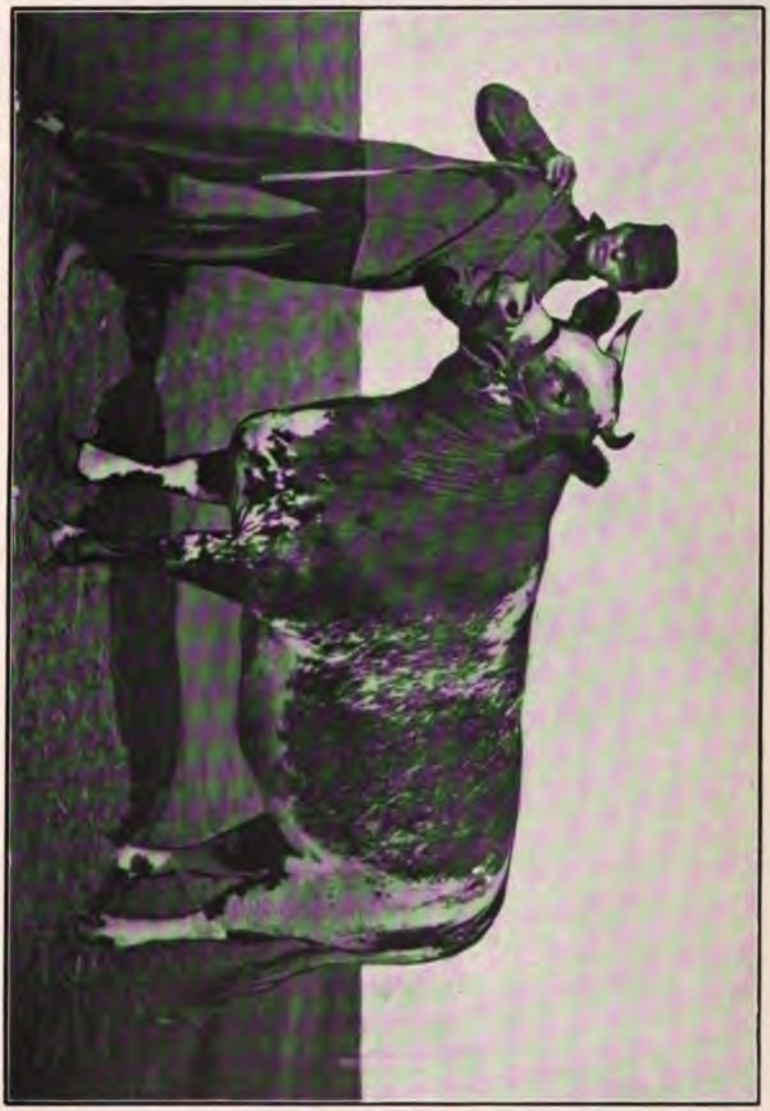
ABERDEEN-ANGUS ADVANCE.

Champion steer of International Live-stock Exposition, 1900. Bred, fed, and exhibited by Stanley R. Pierce, Creston, Ill.



HEREFORD BULL DALE.

By courtesy of Clem Graves.



Photograph furnished by J. G. Robbins & Sons.

SHORTHORN HEIFER RUBERTA.

These figures, with the illustration (Pl. I), show an animal of good grazing qualities, strong constitution but light in flesh-carrying capacity, much coarseness, and unquestionably a bad feeder. This was the old Teeswater type, from which the Shorthorn breed was descended, and represents a period about midway between the beginning of Bakewell's work and that of the Collings.

Things were forming, but not formed. There was no fixed type and no method yet in general use by which a type could be readily fixed.

THE AWAKENING.

It was not until near the end of the eighteenth century that the historical period of pure-bred beef cattle began. The years from 1760 to 1837 were the formative stage of Anglo-Saxon cattle breeding; it was about the year 1760 that Bakewell's operations began. The year 1837 marks the beginning of Amos Cruickshank's tenantry at Sittyton. Around the name of Robert Bakewell those of all great improvers of live stock group themselves, and from the lessons that he taught by example, if not by precept, every breeder learns the fundamentals of his art. Previous to him we find a class of cattle of no uniformity, of little value as high-class meat producers, late maturing, and without quality. After his time, we see an era of wonderful growth and improvement. A man of marked attainments, striking out for himself, he achieved results, by close study of anatomical structure and heredity, that changed breeding methods the world over. He was the first man to practice systematic inbreeding, the stock used being Leicester sheep and Longhorn cattle. He was a constant student—a great man—learning new facts by means of experiment and comparison, always keeping in view the most economical utilization of every force and product of the farm. Though he kept his methods to himself to a great extent, the great fact of them all—that the surest way to improve stock is by the use of inbreeding in the hands of a master—serves to perpetuate his name. His work was the start, and before the end of the eighteenth century the Collings and Thomas Booth with the Shorthorns, and Tompkins with the Herefords, had crystallized the bloods of the popular strains in York and Durham and Herefordshire; while a few years later, at Keillor, Hugh Watson started the "Doddies" on their triumphant career; Quartley was making his a family name among Devon ranks; the sturdy Scotch farmers of Galloway were working slowly but surely to bring their cattle to the high standard set in the South; and the first year of the nineteenth century witnessed the advent of Thomas Bates on the Shorthorn field of action.

While Bakewell showed the way to improvement, Cruickshank emphasized the necessity of utility in connection with pedigree and, saving a great breed from almost certain ruin, formulated that id as a principle that is coming to be more and more regarded as t cornerstone of successful breeding operations.

Out of the dark ages of ignorance and of the scrub, by leaps a bounds, using what material he had at hand and molding it to his wi the English farmer developed the modern breeds of cattle; produci tender meat where tough and leathery fiber had been before, payi the rent with his cattle and sheep, and, in time, contributing ve largely to the growth of agriculture in the New World. America are justly proud of their cattle. Their breeders have reached a poi up to if not beyond that of their contemporaries across the wat but no supremacy of excellence, no victory in show ring or mark can efface the memory of the debt America owes to those sturdy y men whose names adorn the herd records of England and Scotland.

AMERICAN IMPROVEMENT.

Improvement in America began almost simultaneously with that England. No sooner had the Revolutionary War closed than imp tations began, continuing at frequent intervals until the outbreak the war of 1812. These cattle were mainly of Shorthorn breeding a were distributed along the coast from New York to Virginia, so finding their way into Kentucky and Ohio.

The year 1817 will always be a memorable one in American cat history. Following the Cox importation of Shorthorns, immediate after the close of the war of 1812, this year marks the beginning of t Devons and Herefords, another importation of Shorthorns, and t stillborn advent of the Longhorns. The Shorthorn importation of th year, and the previous Cox importation, are notable for another reaso as both mark the initial point of Shorthorn pedigree folly in the Unit States.

Growth was slow for ten years, when renewed activity was ev denced, especially in Shorthorns. Companies were formed and t improvement in cattle was marked. In point of numbers the Shor horn breed rapidly assumed a foremost position, and until about t year 1880 was the only beef breed of prominence.

The expansion of the cattle business was rapid. Up to the openi of the transcontinental railways it was mainly carried on in t sections east of the Missouri River, but with the entrance of the arteries of trade into the plains and the discovery of the great oppo tunities of this country for grazing, a growth set in that was too rap to be normal. In the early eighties pure bred cattle by the thousan were brought from England to supplement the American herds breeding bulls for the range, and the nearest that the Hereford a Angus breeds ever came to having a boom in this country was at t time. After the collapse, which was bound to follow, the cattle business is now on what is thought to be a substantial and healthy foundation. Quality is being bred into the range herds by the extending use of pure-bred sires, and this, with better methods, is bringing the range steer to a high plane of excellence. Both on the range and on the small farm, improvement has gone hand in hand with increase in numbers.

In taking up an examination of the breeds of beef cattle in detail, keeping their characteristics in mind so that a just comparison may be reached, we find that in all important points, considering them simply as finished beef animals, ready for the block, there is little difference between individuals of the various breeds. There is a tendency for all to approach a common standard. All have been developed with a common object in view—the production of beef. This result will be accomplished by practically the same methods the world over, varying only on account of the facilities at hand and market demands, and this breeding of cattle solely for the production of beef has resulted in the formation of the "beef type." Carrying the idea still further, we may say that breeding the same species of animals over a long continued time for a single purpose results in the formation of a "type" whose characteristics are fairly well fixed, the word "type" being arbitrarily used for lack of a more convenient one. Thus, in cattle, in addition to the beef type, we shall find that breeding for the special development of the milking function has resulted in a fairly well-defined dairy type; in horses, breeding for the different purposes of speed and draft has resulted in two very well-defined types; while the same result has, to a large extent, been brought about among the breeds of sheep by breeding specially for mutton or for wool. In addition to the influence of the breeder in the development of a type, the influence of soil and climate has been great.

This being true, the longer the breeds of one type are bred to meet the demands of a common market the nearer will they approach the common standard, and this is especially so in the case of animals which are a source of food supply where fashion and taste can not prevail in the face of dollars and cents. This general type is what the farmer looks for in selecting his feeding cattle, and, with very many men, this is all they consider, the matter of breeding being looked upon as of minor importance. The knowledge of this framework is the first essential and, unless thoroughly learned, one can not lay claim to a knowledge of the breeds.

BEEF TYPE.

The first point observed in an ideal animal of beef type is his form. This will approximate the rectangular. It will show a body that is compact, symmetrical, broad, deep, and close to the ground. Legs are only of use to carry the animal around. He is "straight in his lines;" that is, the lines from the top of the shoulder to the tail head, and from the brisket back to the purse, are as nearly parallel as possible, as are also those from the center of the shoulders to the center of the thighs, no deviation from the horizontal being allowed the top line. This will give the form a rectangular appearance.

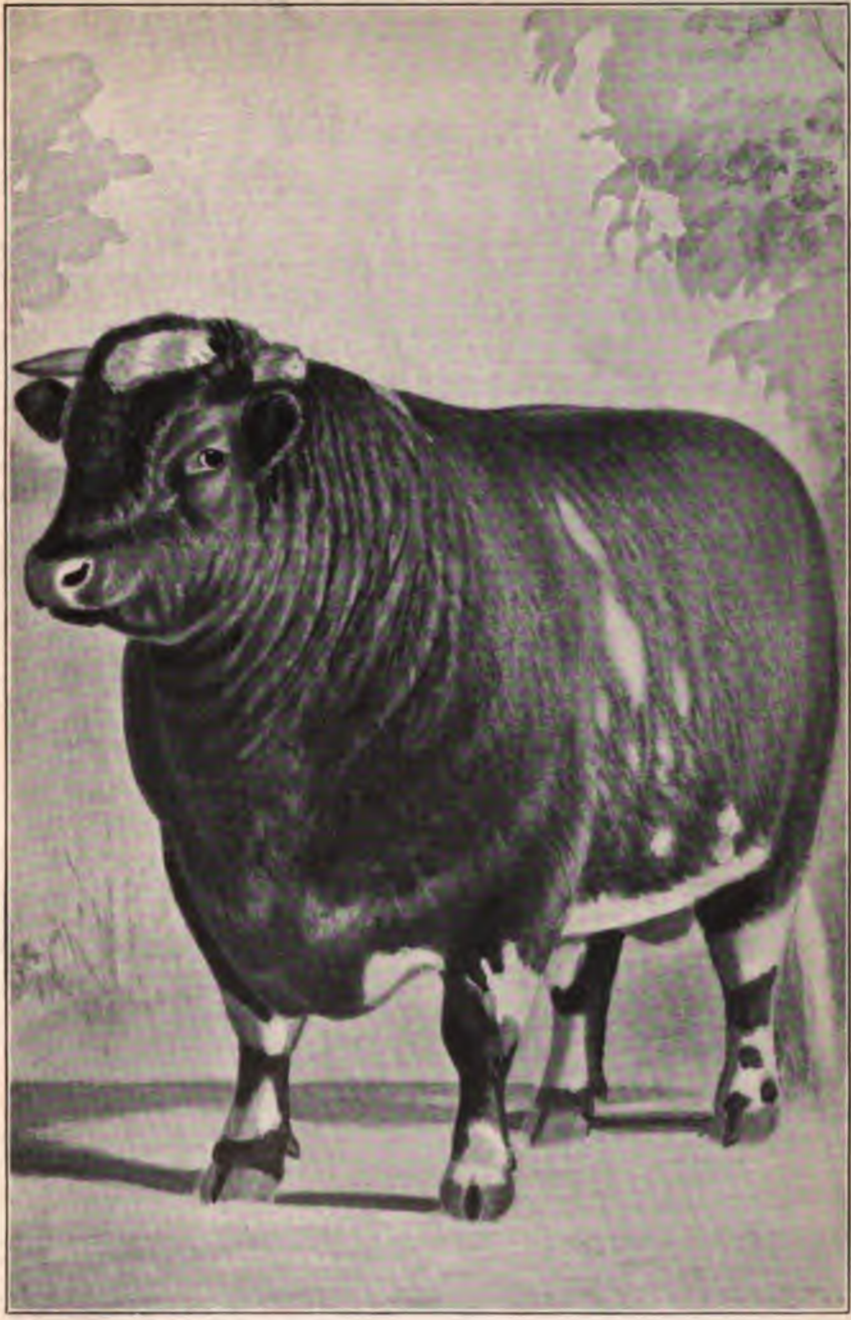
The head shows a "good feeder." Observation and experience show a good feeding head to be broad and well filled between the eyes, with a good roomy brain box, tapering nicely, and short from the eyes to the muzzle, which should be wide and clean cut, with large, well-open nostrils. A large mouth usually is the first indication of good digestive capacity, and large, open nostrils go with good lung power and a strong constitution. The whole head is clean cut, with no superfluous flesh on the jaws. The horns, if present, are of medium size and not coarse; ears of medium size, gracefully and actively carried. The eyes are large, full, bright, clear, and placid. The neck of most animals of extreme beef type is reduced to the shortest degree possible with usefulness. It is moderately full, with clean-cut throat, large, well-defined windpipe, and little or no dewlap. The neck joins the shoulder in full, even lines, swelling into the shoulders, as it were.

Shoulders are moderately sloping, well covered with flesh, smooth, deep, and wide; tops of shoulders compactly covered with smooth flesh. The chest wide and deep with the crops full and heart girth full. The brisket will be wide and projecting forward, carrying a moderate amount of flesh. The ribs are well sprung, long, and close together, giving the animal plenty of room for the work of the organs of the chest and abdomen. The space between the last ribs and the hips is short, giving the body a compact appearance.

Thus far we have concerned ourselves principally with the parts that have to do with the organic nature of the body. Along the back, from the shoulders to the hips, we find the most valuable meat in the animal's carcass. Here, then, we have the greatest width and depth of flesh possible. The spring of the ribs mentioned, the length and breadth of back and loin, and, above all, the depth of flesh on ribs, back, and loin, are absolute essentials of the beef type.

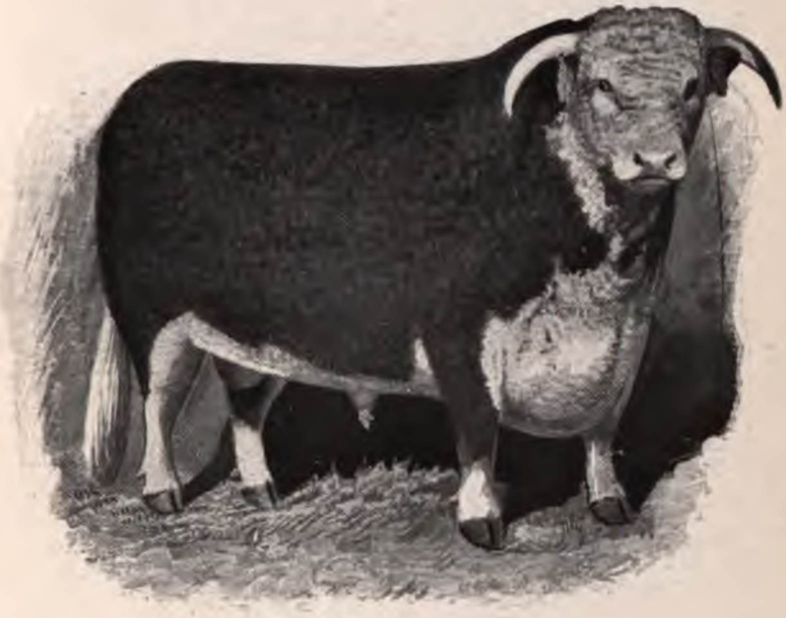
The hips are of medium breadth, well covered and smooth, the rump long, wide, and well filled in from hips to tail head. The thighs are wide, deep, and full, and the same description applies to the twist. The flesh of the hind quarters is carried well down to the hocks. Legs are short, straight, and strong, with fine, clean bone, and set well outside the body.

Above all, every part of the body of an ideal beef animal shows "quality." It is this that tells the farmer whether a steer with a good form will prove a profitable feeder; it tells the butcher whether the



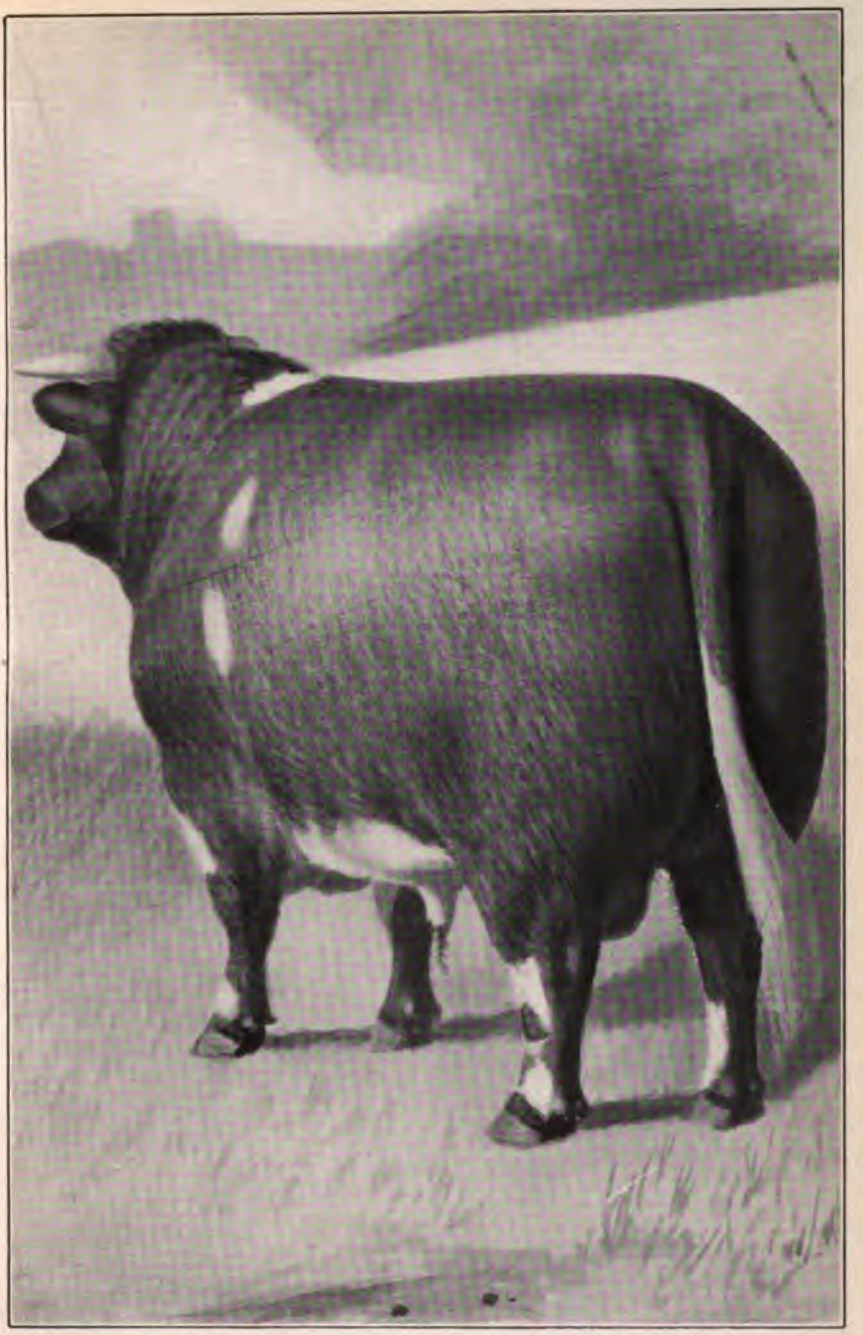
By courtesy of T. J. Wornall.

SHORTHORN BULL VISCOUNT OF ANOKA.



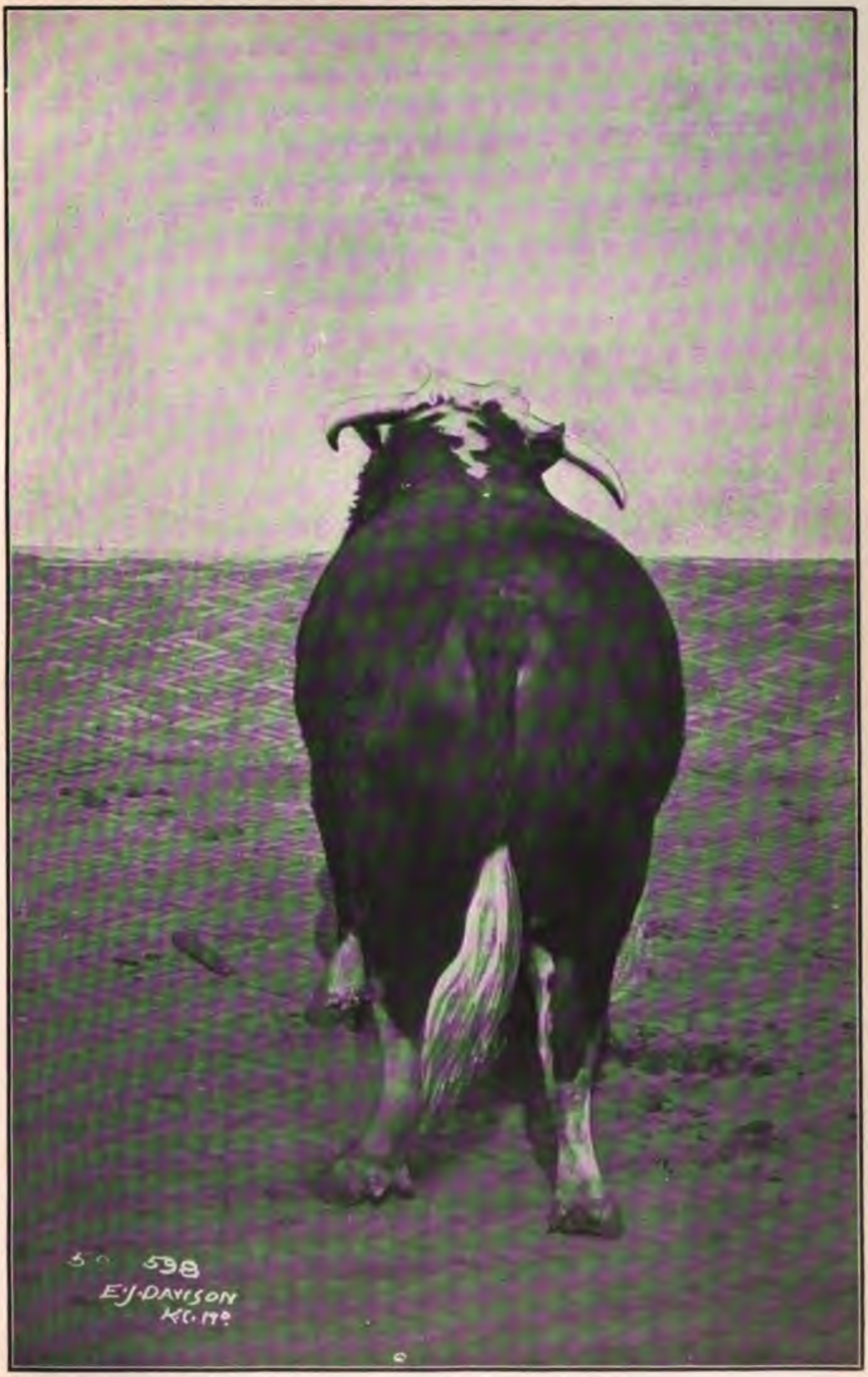
By courtesy of T. F. B. Sotham.

HEREFORD BULL SIR BREDWELL.



By courtesy of T. J. Wornall.

REAR VIEW OF VISCOUNT OF ANOKA.



Photograph furnished by T. F. B. Sotham.

REAR VIEW OF SIR BREDWELL.

animal will "kill" well. This is a point that can not be overlooked and is difficult to describe. Lack of it shows in a coarse, fleshy head, in a thick, meaty throat, and a rough, uneven shoulder. Coarse, heavy bones and a loose-jointed appearance generally will show the undesirable feeder; rough flesh, "ties," and "patches," the undesirable killer. The animal handles well. The flesh is mellow and firm, showing a proper mixture of fat and lean. The skin is loose, but not superfluous, mellow, and moderately thick, covered with a plentiful growth of hair. Such an animal usually weighs 1,500 pounds at twenty-four to thirty months.

WHAT IS A BREED?

A type may be defined as the result achieved by breeding domestic animals for a fixed and definite purpose. Definite breeds of the same type have been evolved by the development of animals for the same purposes, but with slight differences that give slightly different results. These differences—the influences that go to make up a breed—will be (1) environment, (2) the characteristics of the original stock, and (3) personal preferences of the breeders. The outstanding work of one man or the standard set by many will gradually fix certain characteristics until they become practically constant, and a breed is the result. That breeds as we have them have been developed solely by man's efforts is shown by the fact that, if neglected, all breeds of one species in the same locality tend to revert to a common type—the original species or variety from which all have been developed.

THE BREEDS OF BEEF CATTLE.

On leaving the general beef type, which is common to all beef cattle, and taking up a consideration of the breeds in detail, the first marked difference that presents itself is the requirement that breeding cattle possess what is generally known as "character." In the preceding description we had before us the fattened steer. Character must be present in fat stock, but the word is not used with the same application as with breeding stock. A steer's business is to turn himself into marketable beef of the best quality in the shortest possible time. If the farmer knows a steer will do this he is satisfied. Character shows in the lower animals somewhat as it does in man, and the head is the mirror that reflects it. In a bull that which impresses one with a sense of dignity, individuality, and power, with an unmistakable masculinity, is his character; on the other hand, we note character in a cow by her individuality, dignity, and femininity—a sweet, big-hearted motherliness—that, no doubt, will cause any calf to run to her. We can not tell what that power is anymore than in human beings. It is there; we feel its presence; still more, we note its absence. Experience must teach it.

The bull must be masculine; he must have a strong crest an bull's head. The cow must be feminine, with no trace of masculini In addition, breeding stock must be prepotent, able to transmit th characteristics accurately and uniformly. This can hardly be e mated by any external indication. A strongly prepotent animal usually have a great deal of character, but the only sure indicatio the animal's work as a breeder. Prepotency is thought to be her tary as well as feeding qualities, and close study of a pedigree i fairly satisfactory way to determine how a youngster will develop.

We may summarize, then, the qualities that we find common necessary to all breeds of beef cattle as follows:

(1) Character and sexual characteristics—prepotency.

(2) Beef type—"carrying the greatest amount of flesh in smallest superficies."

(3) Quality.

(4) Early maturity—ability to produce the greatest weight of pri flesh in the shortest time.

Observe that all but the first are brought about by market deman

SHORTHORNS.

This is one of the heaviest of the beef breeds. Mature bulls show shape often attain a weight of 2,700 pounds and cows 2, pounds. However, these extreme weights, without the highest qu ity, are objectionable. The color is more variable than that of other breed; it may be red or white, or a mixture of these colors, colors popularly used to describe the breed thus being red, white, a roan. Roan "is, indeed, the one distinctive Shorthorn color ne produced except by the presence of the blood of this breed."[a] Taki up a detailed examination, note the width and depth of form, its gr scale and substance, and the general impression of style. We an animal possessed of quality, a clean-cut appearance straight throu the body set upon legs of medium length with a clean bone of mod ate substance. In the head, observe the width between the eyes— fullness of the brain box and the expression of great character. typical Shorthorn head will afford a man weeks of study in bov character. The indications of a good feeder are also present. passing, note the short horn, curving gracefully forward and occasi ally drooping, waxy and white in color with black tips. The neck sho strength and sexual power, and is joined to a rather upright shoul by a smooth and full shoulder vein. Passing to the body, note heavy flesh and the spread of back and loin. In the hind quart especially Shorthorn characteristics are present. Indeed, the br has the reputation of carrying the best hind quarter of any. N the width of hips, the length and width of rump. Further on, great width, depth, and fullness of thigh and twist and the way that the flesh is carried right down to the hock are prominent features. Especially characteristic is the line of the back of the thigh. This is nearly straight from the tail down, making the plane of the thighs nearly level. Legs are of moderate length, with a bone of medium fineness and plenty of strength.

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[a] Sanders' Shorthorn Cattle, p. 14.

Three groups of Shorthorn cattle have been evolved during the last century. During the first fifty years, the Booth and Bates families were developed and the opposition between them was as great as between different breeds. The Booth cattle were famous for their fleshing qualities. Bates cattle were famous for both milk and beef production. They grazed well and possessed high quality and much style. Later the development of the Scotch sorts, under the guidance of the Cruickshanks, brought forth animals of a blocky, short-legged type, with much scale and substance, excellent fattening powers, good constitution, quality, and early maturity. The tendency during the past thirty years has been to combine the blood of the old strains.

As individuals, the weak points of Shorthorns are a tendency to be rather long of leg, flat in the ribs, and light in heart girth, and an undue prominence of the hook bones, with a consequent lack of fullness of the rump. On the other hand, the great flesh-carrying power, development of hind quarter, quality, and prepotency are manifest.

As a breed, its popularity and wide dissemination have given rise to variation in types that has resulted in many a show-ring dispute; but we have, to offset this, the wonderful adaptability of the breed, its seeming universal usefulness, and its value in crossing with almost every other. Shorthorn blood was the first to be used on the native cattle of the Plains, and exercises a very great influence on the range cattle of the present time.

An estimate of 150,000 as the number of living registered Shorthorns in the United States is approximately correct. Of these, it is stated that 5 per cent are on the range and 95 per cent in the hands of the "small farmer," the strong feature of the breed being its adaptability to the requirements of diversified farming.

HEREFORDS.

In weight, Herefords are about equal with the Shorthorns. The extreme weights to which Shorthorn bulls frequently attain are rare, but, generally speaking, there is practically no difference between the two breeds.

Hereford color is easily recognized. That most favored is a rich medium red with white markings. Note the extent of white; head and face, top of neck, dewlap, brisket, belly, front feet, and hind legs below hocks, and brush of tail are usually white. This arrangement is not absolute. A streak may be present on the middle of the back,

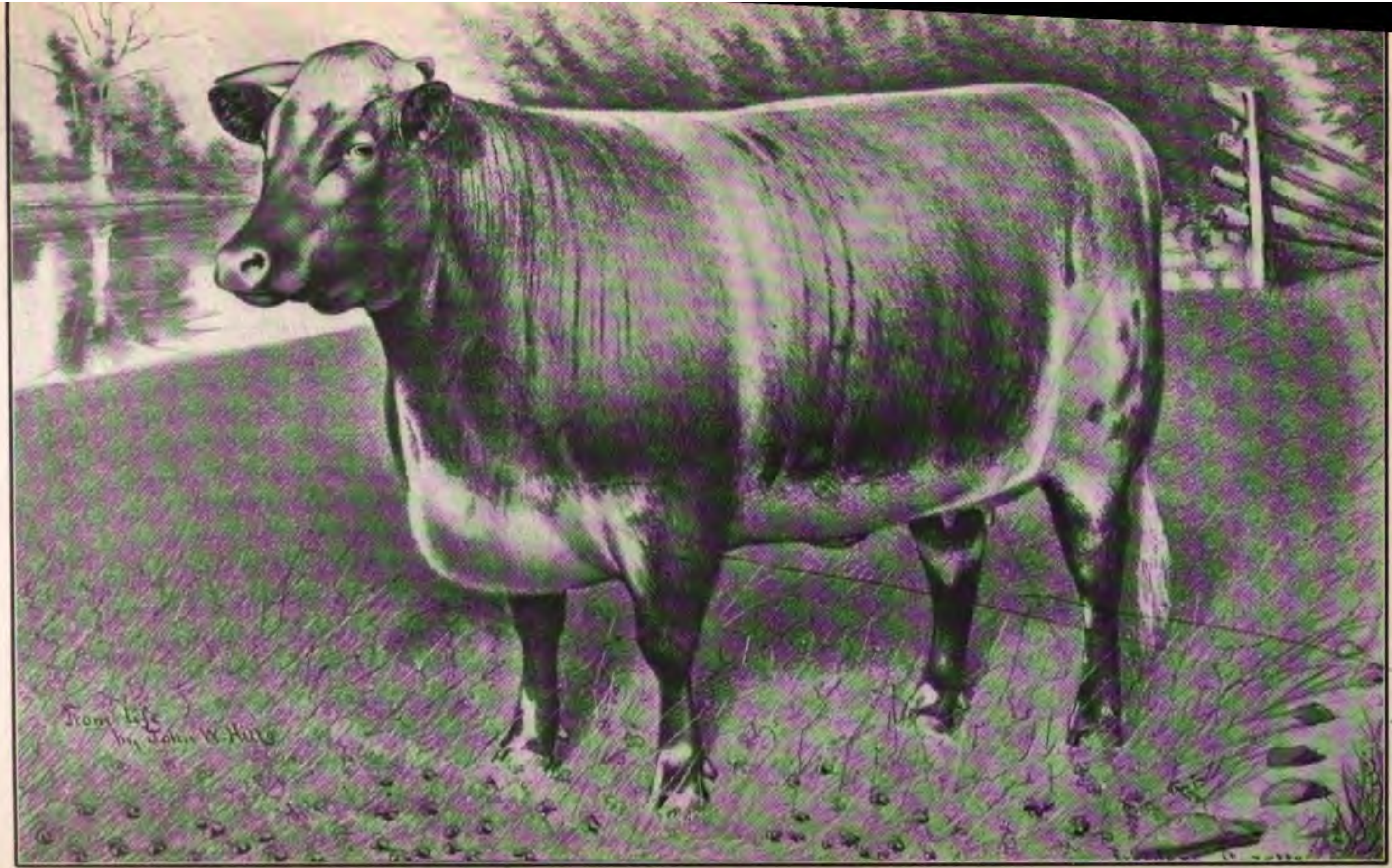
and the white may extend over a very much larger area, even to
extent of making a spotted effect. Ears are usually red or spott
rarely solid color; red spots often are present on the head, especia
around the eyes. The red may vary from a light yellow red to da
almost black in some animals. Time was when the face was gray,
mottled, in some animals and spotted in others. Even an occasio
white animal was met with. The advent of a spotted calf in a h
is therefore no indication of impurity.

In the Hereford the width and lowness of the form is extre
Close to the ground, broad, blocky, deep, nicely rounded, and styli
the Hereford is typical. The head is a splendid feeder's pattern
broad, short, and full of character, with a capacious mouth and la
nostrils, showing good digestion and strong constitution. The muz
is light in color, without spots. The horn is white, somewhat coar
and considerably longer than that of the Shorthorn, has longer curv
sometimes being nearly straight, and usually has a drooping tenden
especially in the best-bred cattle. In cows and steers it is often e
vated, but this is rare in bulls.

Observe how closely the head is set to the body—a noteworthy po
of economy. The neck is cheap meat; therefore, eliminate the ne
if you can. The development of the fore quarters, or "fore han
the width of chest and heart girth have been objects of special care
Hereford breeders. Accompanying these will be the strong consti
tion that has given the Hereford his hold on the range. Back, loin, a
ribs carry a tremendous amount of flesh of fine quality. The Herefo
hind quarter has been somewhat differently developed from that of t
Shorthorn, and has been remarkably improved during the last twent
five years. The square-cut, packed-in-a-box appearance that t
Shorthorn presents is missing here. The hips are not quite so wi
nor prominent as in the Shorthorn, generally a little smoother, t
rump wide and well filled, and, instead of a straight quarter behin
we see a slightly bulging one, more so than in the Shorthorn, but le
than in the Angus.

Individually, the Hereford tends sometimes to coarseness, with
light hind quarter, but he has in his favor a very compact body,
deep fore hand, large well-rounded heart girth, and great depth a
spread of flesh on back, rib, and loin. It is sometimes claimed th
the Hereford lacks scale and size. If this was true at one time, figur
have conclusively proved that it is not now.

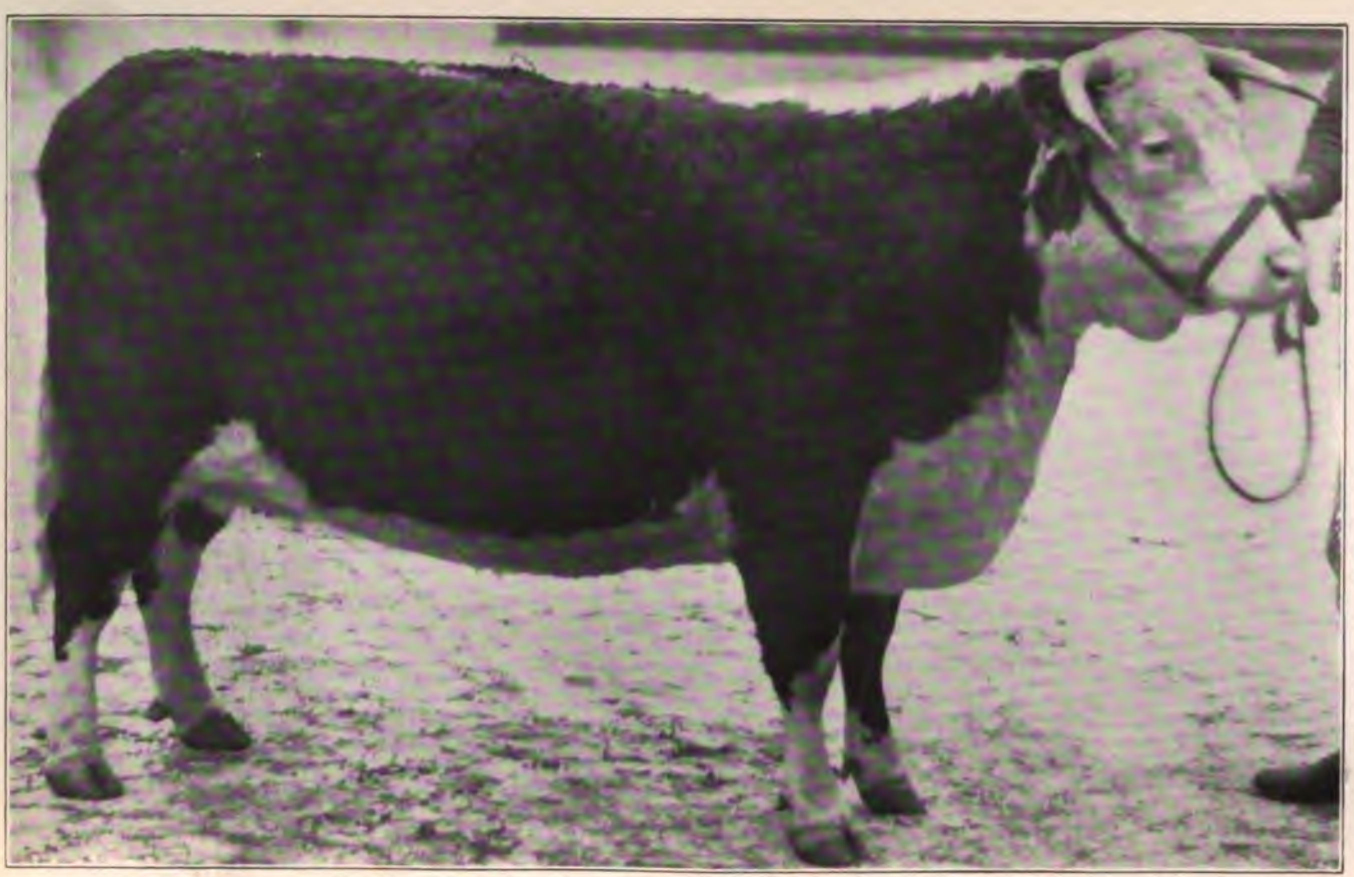
As a breed, their long specialization for beef production has operat
to give them a less general distribution than the Shorthorns; but t
strength of the breed lies in this very fact. Its value for grazi
purposes and for prime beef production commands attention. T
close uniformity of type is also noteworthy.



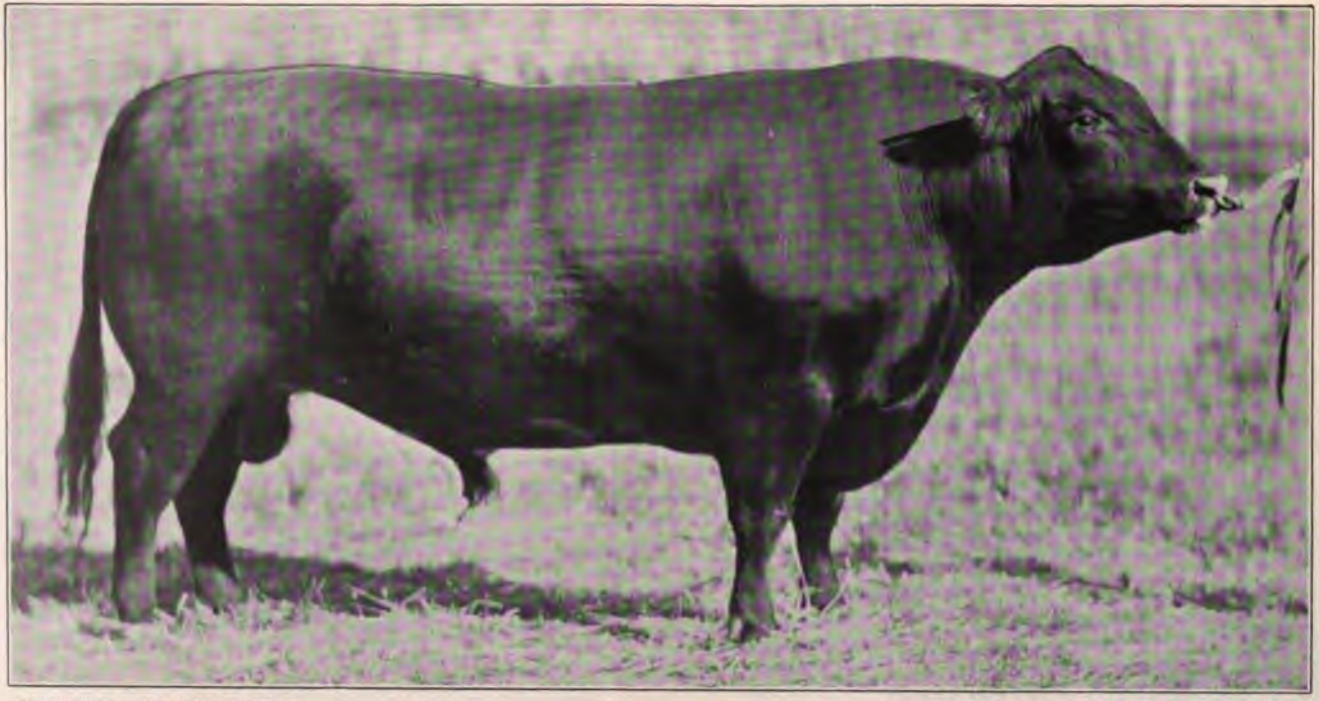
By courtesy of Aaron Barber.

SHORTHORN COW MARY ABBOTSBURN 7TH.

Bred by the late T. S. Moberly, Lexington, Ky.

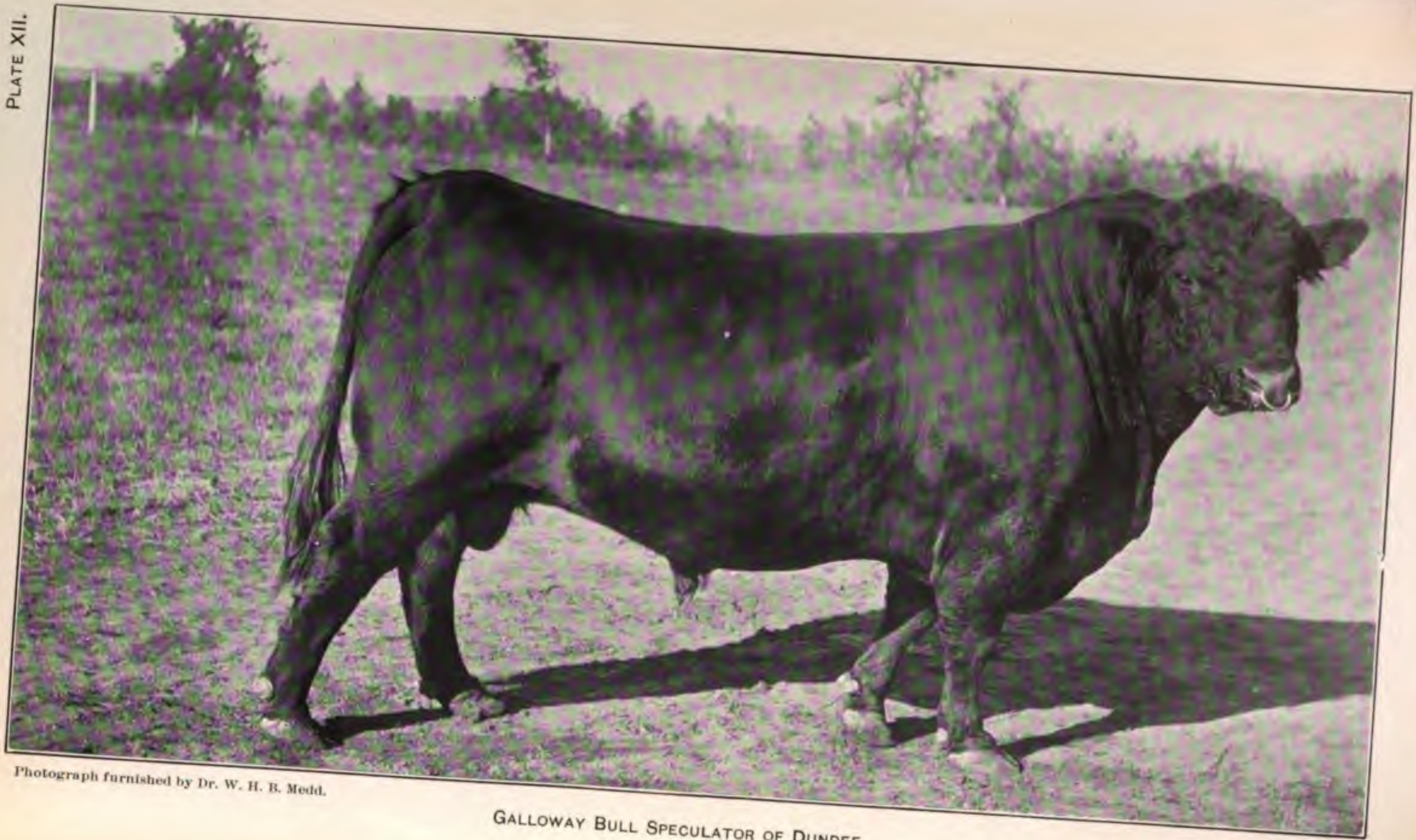


HEREFORD COW BETTY 2D.



Photograph furnished by A. C. Binnie.

ABERDEEN-ANGUS BULL ORIN OF LONGBRANCH.



Photograph furnished by Dr. W. H. B. Medd.

GALLOWAY BULL SPECULATOR OF DUNDEE.

Though among the first breeds to be introduced, Herefords were little known in the United States until the opening of the range country. The impetus which this gave the cattle trade brought them into prominence, and, beginning about the year 1880, a rapid growth has put the white faces second in point of numbers in this country and almost supreme on the range.

It is estimated that the number of registered Herefords in the United States at present is about 70,000. Of these, about 14 per cent are in the range States.

ABERDEEN-ANGUS.

Examining an Angus bull for the first time, we shall notice first his black color. He is all black, the only white allowed being a little on the underline behind the navel. Some white on the udder is not objectionable, as it is thought to be usually present with the best milkers, but white is not wanted on the cod. Occasionally red calves' are dropped, showing a tendency to revert to the animals of the eighteenth century, when mixed colors were comparatively common. Having observed the color, we note an entire absence of horns. Not even scurs are allowed.

Going more into detail, note next the form. This presents a considerable variation from the ones previously discussed, and is very typical of the breed. While the requirements of a first-class beef animal demand a rounded form, here we find this carried to an extreme, and the "barrel shape" is a characteristic that the Angus claims peculiar to itself. Viewed from any direction, this marked rotundity is prominent; and one notices, too, how low-set the animal is, his great style, quality, compactness, and symmetry. In the feeder we find all the indications of a good beef-making machine and in the finished animal every requirement of a market topper. We see short legs, and neat, fine bone, and most particularly the wonderful smoothness which even the most extreme forcing is hardly able to mar.

The head is very characteristic. Short, wide, clean cut, with a muzzle whose capacious mouth and large nostrils denote excellent feeding qualities and strong powers of constitution; surmounted with a tufted poll that is sharp and higher in the female than in the male, and ornamented with eyes of rare beauty, and large, hairy ears, elegantly carried; the whole set to the body with a neck almost as short as that of a Hereford. The Angus head is an index of the excellence that we are to find behind it.

Note the tremendous width of chest, with legs set well outside the body, the spring of rib, and deep heavy flesh. Observe the compactness, how closely the ribs are joined to the hind quarters. In the hind quarters we fail to find the hook bones. They are there, but so well concealed by smooth flesh that frequently the most careful handling fails to locate them. Here we find still other Angus characteristics. The tail is set a little farther forward than in the Shorthorn The buttocks are more rounded, but the quarter carries a large amoun of flesh well down to the hocks.

Individuals of this breed do not attain the great weights of th Shorthorns, mature bulls rarely weighing over 2,200 pounds, an cows averaging perhaps 1,600 pounds in show condition. But earl maturity enables them to attain marketable weights in an extremel short time. Angus bulls are strongly prepotent, getting calves o great uniformity, from 75 to 90 per cent of which from horned cow are polled.

The milking qualities of Angus cows have been considerably neglected, and all the powers of the breed have been directed to th production of prime beef. How well this has been accomplished th markets and fat-stock shows both in England and America will witnes They stand heavy feeding admirably, and the bulls are in use all ove the country in grade herds.

The principal defects of cattle of this breed will be found to be tendency to coarse shoulders and narrow rumps. Special points o merit are their quality, early maturity, and excellence for the block As a breed, they are prepotent and uniform in type.

The first importation of Angus cattle into the United States was tha of three bulls brought over in 1873 for use on the native cows of Kansa and Indian Territory. The offspring of these bulls attracted muc attention, and subsequent importations soon made the breed well known They shared with the Herefords the rush of the early eighties, it being estimated that over 2,000 head were imported from 1879 to 1882 There are at present about 40,000 registered animals living in North America, about one-fifth of which are on the range, the other four-fifths being in the hands of the small farmer and breeder. Their footing on the range has always been secure, but the popularity of the breed for the production of "baby beef" keeps most of them east of the Missouri.

The outlook is bright for Angus cattle in America. Under date of July 15, 1901, Secretary Thos. McFarlane, of the American Aberdeen-Angus Breeders' Association, writes: "We are now recording more animals per annum than the parent society in Scotland, and our sales are also greatly in excess of those made in Scotland." This is worth thinking about.

GALLOWAYS.

Many judges have found Galloway and Angus so much alike that the one was mistaken for the other. This has been carried to such a point that claims were made at one time that there was no difference between them. In appearance their common color makes identification difficult, but as to a common origin, if such was the case, it was so far back in bovine mythology that its effect was long since lost owing to differences in climate, environment, management, and standards of breeding.

We find the Galloway ranking with the Angus in size. In form the beef rectangle presents itself—broad, deep, and symmetrical. Possessed of ample bone, very hardy and an ideal hustler, the Galloway has endeared himself to cattle raisers in rigorous climates and high altitudes. His coat is specially characteristic, with a thick hide and a mossy coat of long, wavy hair, in fact, a sort of double coat, a close mat of short hair being found under the long one. Black, tinged with brown, is the prevailing color, but a tendency to reversion to the old stock of mixed colors may be present.

Like the Angus, Galloway bulls are good dehorners, and strongly prepotent, from 75 per cent to 90 per cent of their calves from horned cows being without horns. On the range and in the feed lot Galloways are of great value, and their hides are made into robes of great beauty.

The principal defects that Galloway breeders are endeavoring to breed out at present are the roughness of the shoulder points and tail head, and an occasional lowering of the top line. Among the more outstanding merits of this breed are their great hardiness, prepotency, excellence for the block, and fine hides.

DEVONS.

Small in numbers and below medium in size, the "little Devon" is a bovine exemplification of the familiar bit of homely philosophy that articles of much value are often found in small packages. However, our Devon is not popular, according to general acceptance of the word, and, since the decadence of the ox as a motive power, has lost yet another claim on public affections. The reason for this is probably his size. Mature bulls do not often weigh over 2,000 pounds; but for high quality, fattening powers, compactness of flesh, and perfection of form, splendid handling, and beauty when finished, the Devon is a model.

In color, the Devon is a red varying from light to dark, with orange rings around the eyes, and tip of tail white, and white occasionally on the udder. It has a small, neat head, with broad forehead, and fine horn, curving forward, upward, and outward in cows and heavier and straighter in bulls. The body is set on short legs with fine bone. With all their value for beef production, the milking qualities of the Devons have not been allowed to deteriorate, which gives them special importance with the small farmer in a system of diversified agriculture. They are very hardy and great rustlers, and their value in regions of scanty pastures follows as a matter of course.

It is generally believed that the Devon has an ancient lineage that might startle some of his more fashionable brothers if it were disclosed, and, if the cattle that were brought over in the ship *Charity* really were unimproved Devons, it has the oldest record of any breed now on this continent. Though several importations were made prior to 1817, the one of that year was the first whose descendants were kept pure. From that time the growth of the breed has been slow. The Devon bulls are used to some extent in the range country, especially in Texas, giving much satisfaction. Their great value there would seem to warrant the extension of the breed on our lighter pastures.

SUSSEX.

This breed is not well known in the United States. It resembles the Devon closely, but is much larger, ranking nearly with the Shorthorn and Hereford. The color is much the same as the Devon, with brush of tail gray, and white markings on the underline and on inside of flanks.

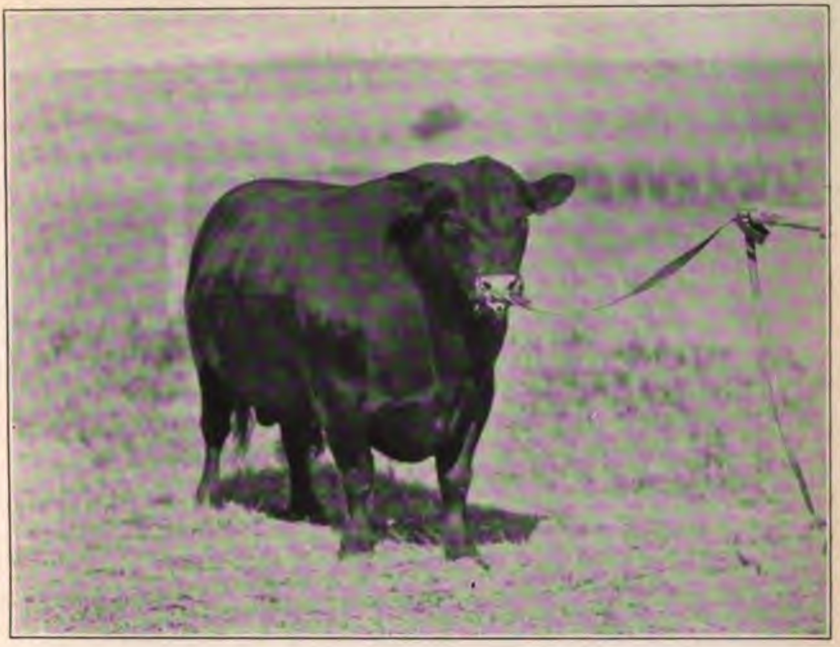
The oxen of this breed have always been famous for strength and activity, and the steers make excellent beef. The record of the Sussex at the American fat-stock shows of ten and twelve years ago show them to possess qualities that well repay attention and care.

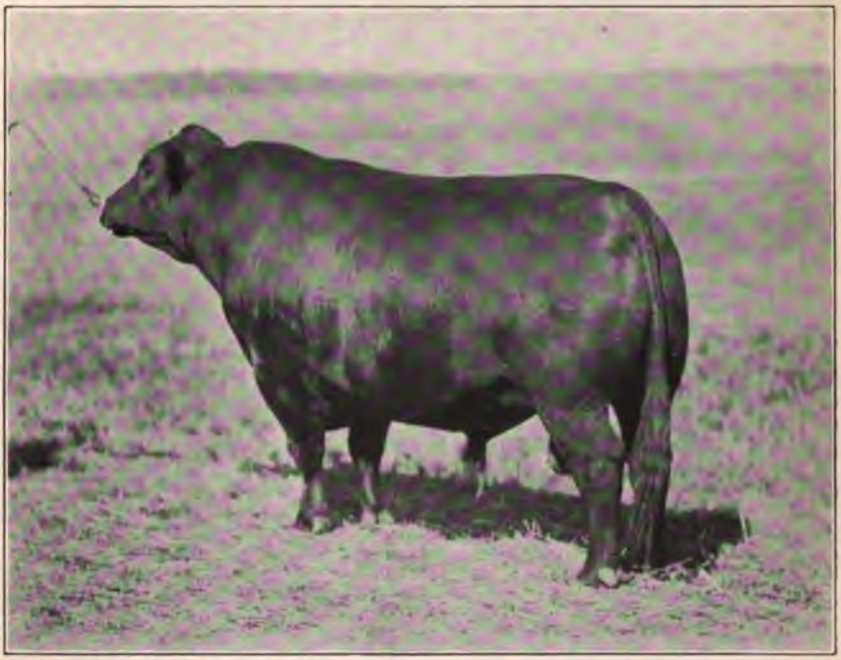
RED POLLS.

The Red Polled is one of the youngest of the breeds. It was not until the year 1846 that the union of the Norfolk and Suffolk breeders gave the breed its name, and from that time the real history of the breed may be said to date, though for many years before this the two branches had preserved their individuality in their respective districts. From the start this breed has been famous as one valuable alike for dairying and for beef production; and on the markets of England the Norfolk cattle take high rank, often selling for prices as good as the "Scotch" beef, which is considered the best the market affords.

They were first brought to America in 1873, and since have grown steadily. Here their beef-making qualities have been neglected, to some extent, but they have figured strongly as valuable animals for the small farmer. Neglect to show them in high condition has also tended to obscure their flesh-bearing powers in time past, but recent exhibitions have been highly creditable.

As their name indicates, cattle of this breed are without horns—no appearance of them being tolerated. In color they are a rich, deep red, with white allowed on the udder and underline, inside the flanks, and on the switch of the tail. The head is quite characteristic, of medium size, clean cut, with a sharp poll which carries a good tuft of hair. The neck is of medium length; body of good size and shape;





Photographs furnished by A. C. Binnie.

FRONT AND REAR VIEWS OF ORIN OF LONGBRANCH.

legs of medium length. Red Polls are very uniform, prepotent, and hardy, and have many earnest advocates, being good milkers as well as good feeders.

POLLED DURHAMS.

These cattle have quite reached a point where their claims as a breed are meeting recognition. Starting with a cross of Shorthorn bulls on native "muley" cows, and following by the use of hornless calves bred in registered Shorthorn herds, the polled feature has become fixed, and the bulls are very prepotent, the great majority of calves being without horns.

Aside from the absence of horns, the breed has most of the characteristics of the best Shorthorns. In fact, the model of the breeders is the typical Shorthorn. Many animals are eligible to registry in the American Shorthorn Herd Book as well as the American Polled Durham Herd Book, and in such cases are known as "double standard" Polled Durhams. Such animals have, of course, descended from purebred Shorthorns on both sides. Animals tracing to the old "muley" stock are not eligible to Shorthorn registry, and are called "single standard."

The breeders of these cattle are reasonable in their claims, and have shown commendable energy in developing their business, several animals having been shipped to South America.

BROWN SWISS.

These cattle are readily recognized by their color. This is a solid brown, varying in shade from light to dark, and varying in intensity on different parts of the body—the head, neck, legs, and quarters being usually the darker portions. The characteristic markings are a light, mealy ring around the muzzle, a light stripe across the lips and up the sides of the nostrils, a light-colored tuft of hair on the poll, and a light stripe down the back from shoulder to tail head, with black nose, tongue, switch, and hoofs.[a]

Brown Swiss cattle are of medium size, rather coarse, but hardy and rugged. Although developed almost exclusively for the dairy, they fatten well and have considerable value as beef.

From their native canton, Schwytz, they have been disseminated widely throughout Europe. They were first brought to the United States in 1869.

POLLED HEREFORDS.

In 1898 Gen. W. W. Guthrie, of Atchison, Kans., showed a group of cattle at the Trans-Mississippi Exposition at Omaha that attracted much attention. These cattle had Hereford characteristics, minus the horns, and General Guthrie called them "Polled Kansans." They had been produced by crossing Hereford bulls on "muley" cows, inbreeding being avoided by resort again to Hereford stock. The bull shown was said to get a good percentage of hornless calves. Since then the interest has grown, the name Polled Hereford has been adopted, and recently the American Polled Hereford Cattle Club was organized, with headquarters in Des Moines, Iowa; Warren Gammon, secretary.

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[a] Condensed from Report of Bureau of Animal Industry for 1898.

The polled variation is not so common among Herefords as among Shorthorns, and this imposes a considerable disadvantage on one who attempts to fix it; but there are occasional registered Herefords that have never developed horns. An effort is now being made to collect these animals into one herd and thereby form the nucleus for more extended operations. Such work is commendable and will be watched with interest.

PEDIGREES.

"A pedigree is the written record of an animal's ancestry." Every "scrub" has, in a certain sense, a pedigree, as well as an animal with a "title clear" on the page of a herd book, but with this difference, that the pedigree of the one has been without control or record for generations, while that of the other has been carefully kept in writing, and therefore fills the technical definition. The registered pedigree shows descent through animals of a certain standard and recognized merit, selected with care and skill, while only the course of nature has influenced the breeding of the "native" stock.

Two forms of pedigree are in use in this country for cataloguing sales—the condensed form and the extended or tabulated form.

THE CONDENSED FORM.

The condensed form is by far the more universally used. It is used in some form by the members of practically every live-stock association. A copy from a recent Shorthorn sale catalogue is given:

Buttercup.

[Roan; calved April 15, 1898; bred by E. B. Mitchel & Sons. Vol. 45.]

DAMS.	SIRES.	BRED BY—
	Baron Cruickshank 3d 117968	C. B. Dustin
12th Phyllis of Cedar	Goldstaff 92587	Robert Miller
9th Phyllis of Cedar	Fennel Duke 46070	G. Allen & Son
6th Phyllis of Cedar	6th Duke of Sharon 29364	A. Renick
1st Phyllis of Geneva	Geneva's Airdrie 19839	A. Renick
Twin Phyllis	Master Butterfly 14878	Saml. Thorne
Princeton Bell	Princeton 4285	R. A. Alexander
Daphne	Pearl 2012	S. Vanmeter
One Horn	Wellington (42586)	A. Renick
Limping Kate	Imp. Gratz (11542)	Dolley & Gratz
Susan Turley	Cossack (3503)	Mr. Clay
Katherine Turley	Bulmer (1760)	Earl of Carlisle
Imp. Young Phyllis	Fairfax (1023)	Mr. Whitaker

DAMS.	SIRES.	BRED BY—
Phyllis	Harpham (1098)	W. Cattle
Beauty	Percy (1312)	John Cattle
Delicacy	Ketton (346)	C. Colling

This is a cow of wonderful substance and great depth of flesh. She was shown successfully in the herd of E. B. Mitchel & Sons last year, standing first at Milwaukee and tied her stable companion, Rose Princess, for first place at Kansas City, the referee finally placing her second to the red heifer only.

BARON CRUICKSHANK 3d, probably well enough known to need little comment from us. Suffice it to say that as a breeder of early maturing, thick-fleshed calves, he has proven himself all that could be desired.

GOLDSTAFF, a bull of true Cruickshank type, combining a fine disposition with wonderful individual excellence, was sired by Imp. Goldstick 86748; out of Beauty's Pride 2d, by Orange Lad 46676; second dam, Beauty's Pride, by Imp. Baron Surmise 47432.

FENNEL DUKE, a Bates bull used at the head of Cedar Farm, got by Imp. Kirklevington Duke (41768), out of Imp. Princess 2d, by 6th Duke of Wetherby (33756).

6th DUKE OF SHARON, a pure Rose of Sharon, by Airdrie 3d (32919); out of Rosebud 13th, by the 4th Duke of Geneva (30958); g. dam Rosebud 7th, by 13th Duke of Airdrie (36459).

GENEVA'S AIRDRIE, by Airdrie 3d (32919); dam Nora Belle, by 2d Duke of Geneva 5562, and out of the Abram Renick Imp. Rose of Sharon.

Bred February 24, 1901, to Baron Montrath 127799.

The animal's name, of course, heads the pedigree; then follow the registration, description, date of calving, and name of breeder. The name of the sire of the animal is the name at the top of the middle column, while its dam's name is at the top of the left-hand column, and the name opposite this one is that of the sire of the dam—the maternal grandsire of the animal whose pedigree is under consideration. To illustrate, we have here the Shorthorn cow Buttercup (vol. 45, American Herd Book), got by Baron Cruickshank 3d 117968, out of 12th Phyllis of Cedar. The sire of 12th Phyllis of Cedar is Goldstaff 92587, and her dam 9th Phyllis of Cedar, whose sire is Fennel Duke 46070, and dam 6th Phyllis of Cedar. Thus the ancestry is traced through the dam, the dam giving the family name.

The names at the right are those of the breeders of the sires. In many cases the breeders of the dams are given at the left. This is of great advantage, for the quality of work done and reliability varies with different breeders, just as with producers in any other lines of business. Some advertisers omit the names of breeders entirely. After the pedigree, a number of notes are usually appended, showing the record of the animal in the show ring, and the breeding and record of the more prominent sires in the pedigree. This adds very much to its clearness, and tends to compensate the disadvantages of this form. If the pedigree is that of a cow, the date of breeding and name of bull are given, thus supplying data whereby the offspring may be registered.

The chief advantages of this form of pedigree are brevity and convenience. While it shows the line of family descent, it shows nothing of the breeding of the sire, and really very little concerning the dam. To estimate such a pedigree correctly, an amount of information is required that the majority of men do not possess. Showing the names of the breeders is of value, but if some are given, all should be, and this is obviously impossible. Such a form is not a pedigree in the true sense. It is incomplete and misleading, giving an impression of great merit when, perhaps, none exists. The pedigree above traces the maternal line of descent through fifteen generations. By a simple calculation, we find that the blood of 32,408 animals enters into the makeup of the progeny of so long a line of descent. Yet the condensed form shows but 30, with one sire, Ketton (346), from the sixteenth generation. In most cases, an infusion of foundation blood, by means of inbreeding, will have increased the percentage of such blood, yet the influence thus exercised must not be overestimated.

THE TABULATED FORM.

This style of pedigree has been coming into vogue within the past ten years, and is unquestionably the more rational. In ordinary sale catalogues, pedigrees are usually traced in the tabulated form through five generations, anything further being inconvenient and cumbersome. To show the difference between the two, the first five generations of Buttercup are tabulated and shown on page 25.

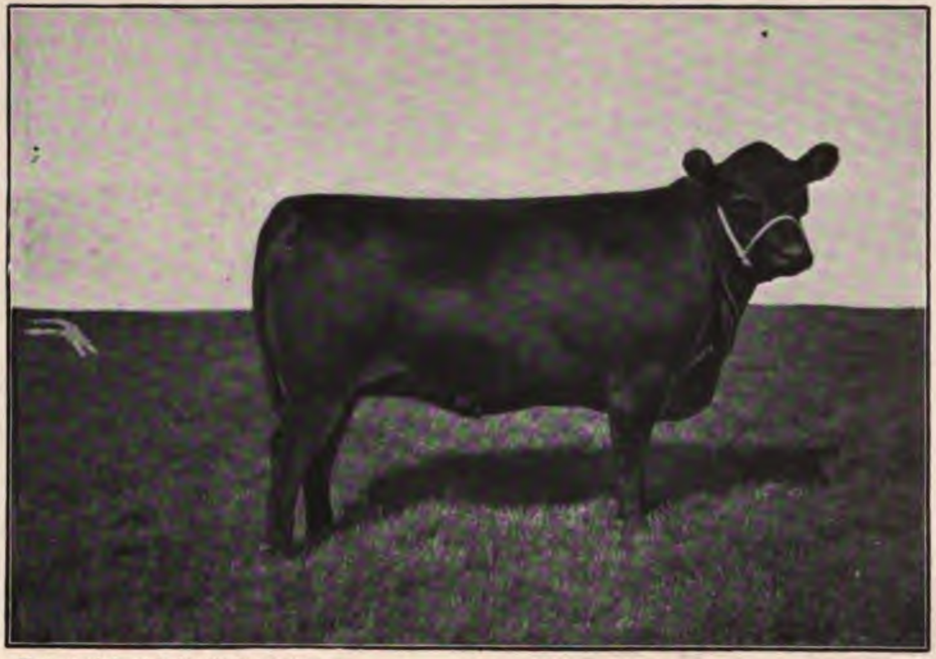
This shows at a glance the immediate lines of descent and reveals the presence of some of the greatest sires of Shorthorn history. Field Marshal and Roan Gauntlet might never be expected from the orthodox form, yet their value as sires in Buttercup's pedigree is much greater than that of Young Phyllis as a dam, and has had infinitely more to do with making this cow the excellent animal that she is. The chances of atavism—"throwing back"—to animals beyond the fifth generation are extremely slight with such strong top crosses, and the foundation must be made up of especially powerful and impressive sires and dams to be of direct value or detriment.

The only objection to the tabulated form is that it does not run the dam's descent to the bottom, and lacks the convenience of the "stepladder" form. But as this line and many more can be easily indicated in a tabulated pedigree by footnotes, that may be supplemented by a knowledge of the history of the breed, the increased value of this form over the other to trace foundation animals is obvious. As to the second point, one may well question whether accuracy should be sacrificed to convenience.

WHAT CONSTITUTES A GOOD PEDIGREE.

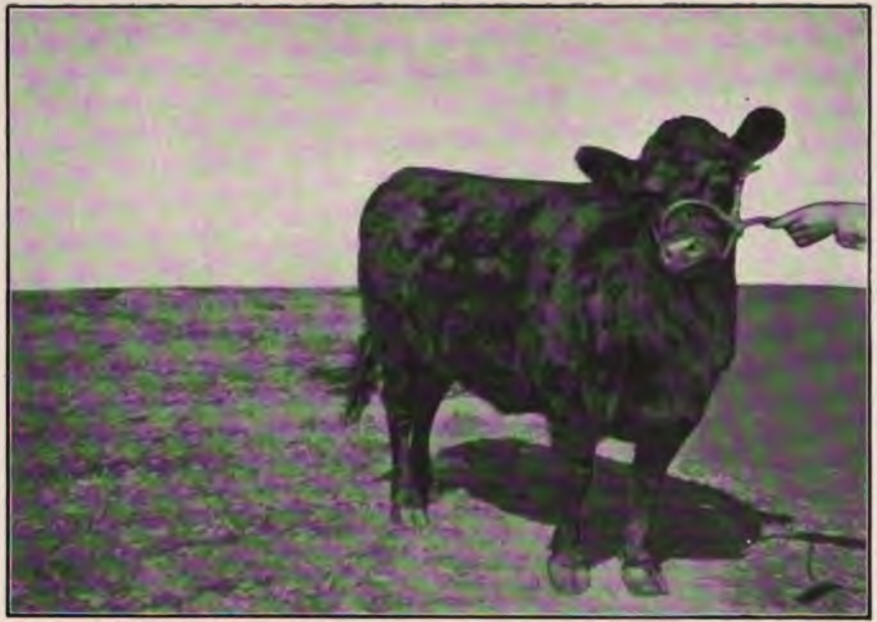
ELIGIBILITY.

Examining a pedigree, the first thing to be ascertained is whether the animal is registered or, if not, whether it is eligible. If not already registered, both sire and dam must have been, thus entitling the animal to registry. Having satisfied ourselves on this point, we next look for the name of the breeder.



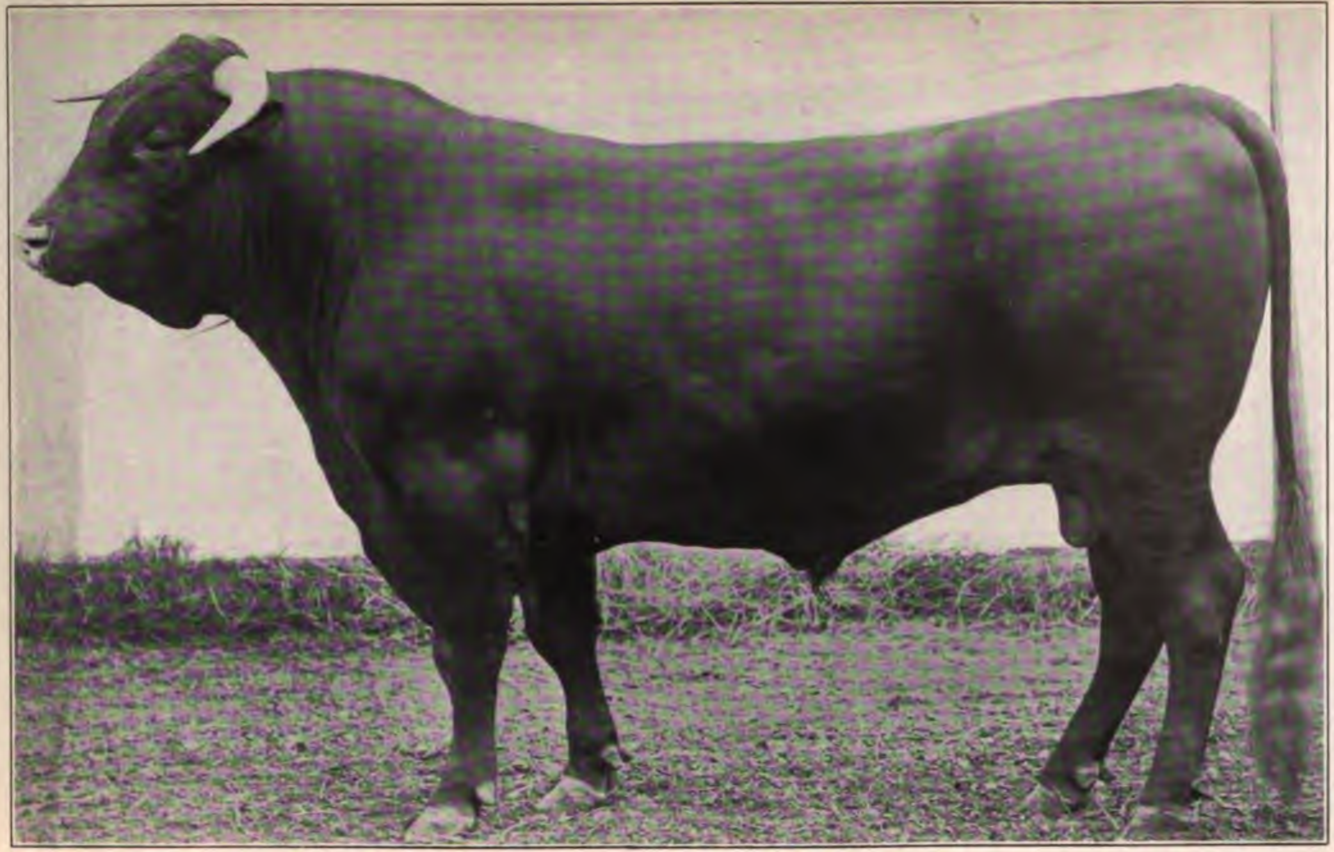
Photograph furnished by Wallace's Farmer.

GALLOWAY HEIFER GENTLE ANNIE A.

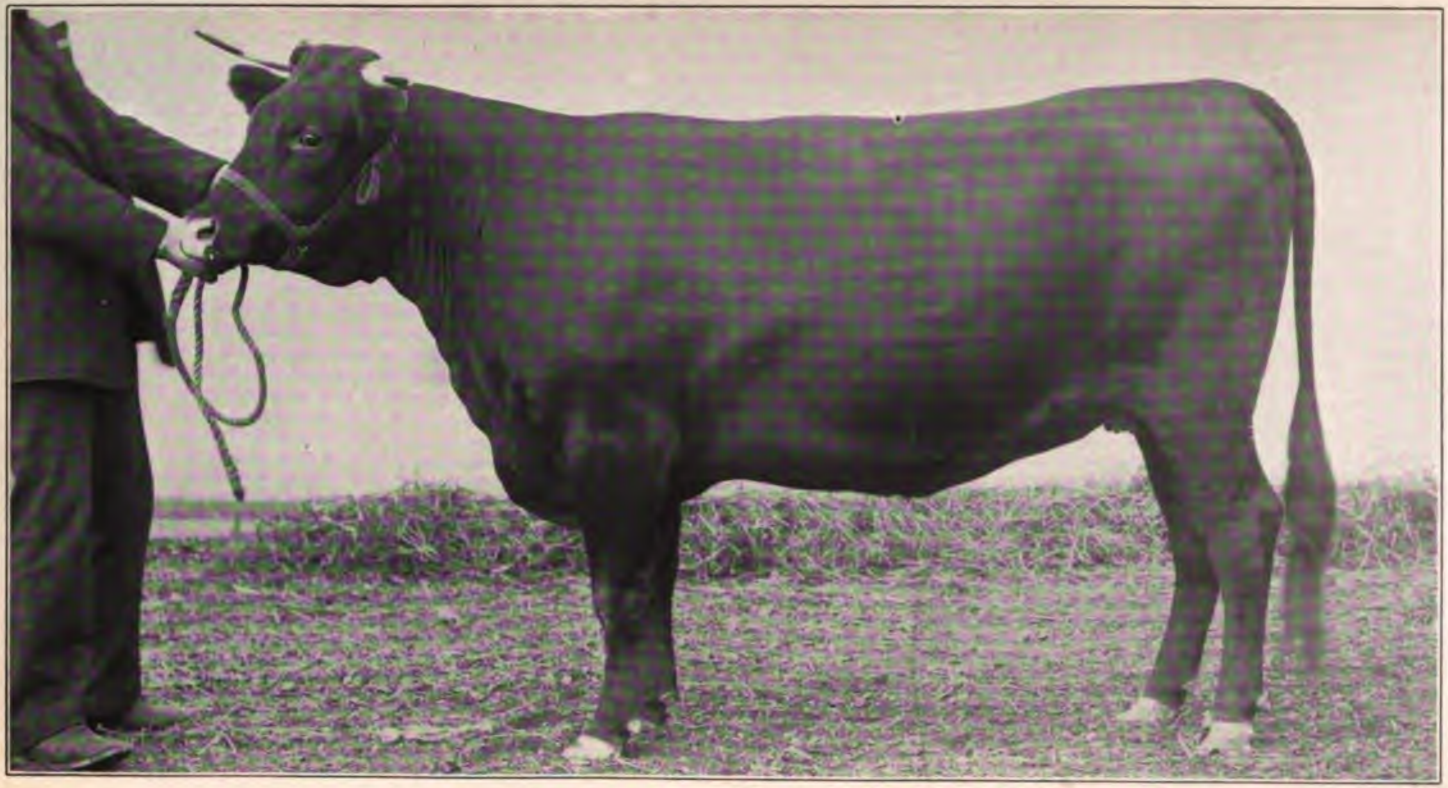


Photograph furnished by Wallace's Farmer.

GALLOWAY HEIFER LUTIE LAKE.



DEVON BULL TULIP'S ROYAL 1ST.



DEVON HEIFER TULIP OF WOODLAND 23D.

Buttercup (vol. 45, A. S.-H. H. B.); roan; calved April 15, 1898; bred by E. B Mitchel & Sons.	Baron Cruickshank 3d 117968.	Baron Cruickshank 106297.	Collingwood 106881	Pro-Consul 94510	Feudal Chief 92299. Violet Bloom, by Royal Violet (40649).
				Cardamine	Cumberland 50626. Cowslip, by Barmpton (37768).
			Maria 10th (vol. 35, p. 345, E.).	Field Marshal 64894	Roan Gauntlet (35284). Azalea, by Cæsar Augustus (25704).
				Maria 9th	Cleveland 106862. Maria 6th, by Lord Paramount 108831.
		Imp. Victoria 79th (vol. 35, p. 383).	Dunblane 65995	Roan Gauntlet 45276	See below.
				Duchess of Gloster 21st (vol. 26, p. 392, E.).	Barmpton Prince 45247. Duchess of Gloster 13th, by Grand Duke of Gloster 19900.
			Victoria 74th (vol. 32, p. 313, E.).	Roan Gauntlet 45276	Royal Duke of Gloster (29864). Princess Royal, by Champion of England (17526).
				Victoria 57th (vol. 26, p. 393, E.).	Barmpton Prince 45247. Victoria 41st, by Lord Privy Seal 58649.
	12th Phyllis of Cedar (vol 37, p. 658).	Goldstaff 92587	Goldstick 86748	Chancellor 68693	Barmpton (37768). Crocus, by Pride of the Isles (35072).
				Geranium (vol. 26, p. 392, E.).	Pride of the Isles 45274. Garland, by Scotland's Pride (25100).
			Beauty's Pride 2d (vol. 30, p. 760).	Orange Lad 46679	Royal Barmpton 31461 (32996). Lovely, by Stanley 21127.
				Beauty's Pride (vol. 30, p. 760).	Baron Surmise 47432. Queen of Beauty 2d, by Stanley 21127.
		9th Phyllis of Cedar (vol. 34, p. 705).	Fennel Duke 46070	Kirklevington Duke 46385.	Duke of Wetherby 6th (38756). Lady Kirklevington 2d, by Earl of Oxford (21655).
				Princess 2d	Duke of Wetherby 6th (38756). Princess, by 2d Duke of Wetherby (21618).
			6th Phyllis of Cedar (vol. 27, p. 664).	6th Duke of Sharon 29364	Airdrie 3d 13320. Rosebud 13th, by 4th Duke of Geneva (30958).
				1st Phyllis of Geneva (vol. 21).	Geneva's Airdrie 19839. Twin Phyllis, tracing to imp. *Young Phyllis*, by Fairfax (1023).

The letter "E." after a cow's record refers to the English Herd Book.

THE BREEDER.

It is a matter of the greatest importance that the breeder be a man of recognized ability and unquestioned integrity. There is so much dependent on a man's method and management that the first point is of vital importance, and the opportunities for errors or downright falsehood are so great that the least question as to honesty should be carefully heeded. The life of a breed depends upon the honesty of the men who make out the pedigrees, and there should be severe punishment for a man who deliberately falsifies a pedigree or certificate of breeding. It is due cattle breeders, however, to say that their transactions have been remarkably free from any tampering with pedigrees.

MERIT.

After registry is looked to and we are sure that the animal comes from the hands of a breeder of recognized standing, we come to the pedigree itself. This is where knowledge of the breed is required, and discernment needed to know not only the character of the animals as individuals, but the results that will probably follow their mating. As "like begets like or the likeness of ancestors," valuable animals in a pedigree give a reasonably certain promise of a good animal as the offspring.

The first essential is to note well the qualities of the sire and dam, their record in show ring and breeding herd, and the records of their offspring. Note, too, whether they are of such lines of breeding that they will mate well, it being supposed that the animal has not yet been seen and examined. Trace the dam as far as possible, noting the breeding and showing qualities of her ancestors, for breeding qualities are hereditary as well as others. In examining a show record the particular shows in which winnings were made and the years are important, for a beast may win at one show and lose at another in the same season, and the same show will often vary in strength of competition from year to year. Take the line of the sire in the same manner, looking to it that strong animals make it up, and that it rests on a substantial foundation, for the mention of remoteness of ancestors spoken of above must not be taken as an argument that the base animals have no value. The thing to be desired above all others is a pedigree resting on a foundation made up of animals of great merit with a superstructure in harmony with it. The length is valuable when the pedigree traces through animals of merit in the hands of able breeders, each additional year fixing the characteristics of the breed and adding to prepotency. The better the foundation the better the opportunities of the breed.

The essentials of a good pedigree are, then, (1) eligibility to registry, (2) reliability and skill of breeders and their predecessors, and (3) individual merit of animals composing it.

FAMILIES.

Families in live stock are always more or less puzzling. Though the system of naming them is simple enough, the application sometimes appears to be incongruous. There is no material difference, however, between our system of naming ourselves and the way breeders name their animals, except that in the latter case the family name is not always appended. A man may be called "Smith" when he really has more blood in his veins of the Jones family, but as is the father's name, so is the son's. With bovines, with a few exceptions, the family name is that of a cow who has had a great record or gives promise of becoming a great one or whose offspring are of uniform and outstanding excellence. All her descendants are spoken of as belonging to that particular family. For example, we have the cows Young Mary, Young Phyllis, Duchess, Secret, Duchess of Gloster, Lavender, Princess Royal, etc., among the Shorthorns, that have been arbitrarily taken as the founders of families. In the United States Shorthorn families usually trace to imported cows. Among the many Angus cows which breeders have chosen to found families may be mentioned Pride of Aberdeen, Queen Mother, Kinnochtry Princess, Blackbird of Corskie, Coquette, Erica, etc. The Hereford breeders are not sticklers for family trees, but have a general preference for certain lines of blood that are traced to the sires by no special route, i. e., the "family line," if we may call it that, may run through the sires as well as the dams. A Hereford bull, then, may found a family, though the lines are not drawn hard and fast, and his descendants may spurn their lineage. Among the bulls of this breed whose blood is popular at present are Anxiety and his sons, The Grove 3rd, Lord Wilton, Corrector, Beau Real, and Hesiod.

THE VALUE OF A GOOD FAMILY.

There are unquestionably good reasons for breeding animals within blood lines that have proved themselves to have exceptional merit in show ring or feed yard. There are, indeed, worthless families of cattle, but, since custom does not require them to be held up to the eye by means of a surname, they may escape notice. In every breed of cattle there are animals that are undesirable in all respects. Of all scrubs, the pedigreed scrub is by far the worst, for someone is sure to breed from it and pass the offspring on to his neighbor with the assurance, "It's all right; it has a pedigree." By keeping to approved lines of blood and requiring individual excellence in each animal such conditions may be avoided, though it must be understood that the breeding of a bovine is only one factor in his destiny. Feed, care, and environment are others no less important.

The great danger of an adherence to family lines is that the pursuit of a fashionable pedigree may become the sole aim of the breeder's work. This has happened, and when such methods prevail the breed will be in very serious danger.

To breed animals entirely within the limits of one family, as Shorthorn men once tried to do in their pursuit after "pure" Duchesses, and as a few attempt now in a desire to possess "straight" Cruickshanks, is to resort to very violent and dangerous inbreeding; and as this is an "edged tool" that can be used only by a master, and as the master minds usually steer clear from "straight" and "pure" hallucinations, it is evident that "family" may be a danger signal instead of a beacon. On the other hand, calling an animal by a family name long after all family resemblance is lost through the infusion of outside blood and nothing but the name is left is a delusion that is much more inexcusable, if not as dangerous as the pursuit of the "straight" pedigree phantom.

A good family is desirable, but the essentials in securing it are, first, to see that the pedigree does not mislead and place too great importance on a distant ancestor; second, that high individual excellence goes hand in hand with a good family descent.

REGISTRATION.

To provide a means whereby pedigrees may be recorded, the history of a breed accurately and officially chronicled, and its integrity and identity as a breed preserved, herdbooks are published. They vary more or less in minor details, but the fundamental principles of all are the same. In the early days breeders were not organized as at present, and the work of compiling a herdbook and recording pedigrees was usually the effort of some faithful and gifted lover of the breed who sacrificed time, labor, and often means to such work. Now, in nearly every instance the management of the herdbook is the chief business of an association of breeders, the editing of such being placed in the hands of the secretary. Details relating to routine business, shows, and the general advancement of the breed, while of great importance, are secondary to the one great essential.

More or less detail and exacting requirements in the form of pedigree and method of recording bring about an occasional cry of "red tape." But rules must be made and rigidly enforced if the records are to be of any value.

CERTIFICATES OF REGISTRY.

The first step taken to record an animal is to fill out the "entry blank" furnished by the association, stating sex, name of animal, color, date of calving, name of breeder, names, registry numbers, and breeders of sire and dam, and often of grandsires and granddams, thus making the statement more complete and giving a convenient means of ascertaining its veracity at headquarters. This is forwarded with the proper fee to the secretary's office. Here the breeding is verified, entered upon the records, a number assigned the animal bearing it, and a certificate of registry is sent the owner, stating that the animal, calved and bred as stated in the application, is recorded by the number given in the association's herdbook, except with the Red Poll Association. Numbers are assigned consecutively as applications for entry come in. This number is then the means by which an animal's identity and pedigree may be established at any time, and is of vital importance, the name being only secondary, as there are many animals recorded under the same name.[a]

MISCELLANEOUS DOCUMENTS.

Certified pedigrees.—If desired, a certified pedigree may be issued with the certificate of registry. This is usually tabulated, certified as correct, and bears the signatures of the president and secretary of the association. It stands as an official record and is valued accordingly.

Transfers.—Applications for transfer are made out on sale of animals, stating sex, name, and number of animal, and names of seller and purchaser, and are used only with animals already recorded. They are usually sent by the seller to headquarters for record and a certificate of transfer is issued by the association.

Breeding certificates.—Breeding certificates and statements certifying to lease of sire are also used on occasion and are of great value to prevent entanglements in the ramifications of breeding operations.

Fees.—Nominal fees are charged for the various services just under discussion. Entry fees vary with the age of the animal, a penalty in the way of an increase of the fee attaching to neglect to register before certain ages. Fees for transfer are paid by the person sending them for record.

While the same general forms are used by all associations for animals of both sexes, we meet with numerous modifications and variations. For example, if a cow is registered, space is usually provided on the certificate of entry for date of breeding and name of bull. This accompanies every certificate given the purchaser on sale of a cow, and serves the same purpose as a statement of breeding in a sale catalogue. Some associations supply a different form of entry blank for animals imported from Great Britain, and in others the record of the females in the breeding herds is sent in annually. In some cases a cow may be rerecorded, this being done to show her produce.

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[a] Volume XXII of the American Hereford Herd Book records 22 animals under the name of Daisy and 27 as Beauty, and the popularity of these names has recorded 30 "Beautys" and 32 "Daisys" in the 43d volume of the Shorthorn Herd Book, with variations innumerable.

THE HERDBOOK.

A perusal of pedigree to any extent leads one inevitably to the her book. These records are usually confined to mere presentations the facts stated in the owner's application for entry, with no attemp to give more of an animal's pedigree than the names of his sire an dam. In some of the older volumes one will find that records ar entered at greater length.[a]

To trace out a pedigree by means of the herdbook, all that is nece sary is to find the record of the animal whose pedigree is wanted, th obtaining the names and numbers of the sires and dams, looking u the breeding of these in the same manner and carrying the process o for each line of descent. By writing down the ancestors as the occur, we have a tabulated pedigree.

A representation of the forms employed by the association wi serve to make this explanation clearer and may be of interest.

SHORTHORN.

All but the Shorthorn herdbook register animals by numbe regardless of sex. Shorthorn bulls are registered by number, but th page and volume of the herdbook on which the breeding of a co appears serves as her registry, and her lineage is always traced b means of the sire; e. g., we have Princess Alice (vol. 35, p. 628) by Fiel Marshal 64894; Mary Abbotsburn 7th (vol. 39, p. 612) by Youn Abbotsburn 110679, etc. In describing a Shorthorn cow, therefor the name and number of her sire are always essential to accuracy an completeness, for two cows of the same name are sometimes recorde on the same page. The principal advantage in recording a cow i this manner is that it provides a check whereby greater accuracy i insured.

The following is the form in which bulls are recorded:

137459 BARON BROWNDALE FOURTH.

Dark roan, calved July 8, 1897, bred by H. F. Brown, Minneapolis, Minn., got b Victor of Browndale 117621, out of Constance of Cloughdale 2d (vol. 39, p. 369 by Bloom's Duke of South Fork 90689—tracing to imp. *Constance* by Bridegroo (11203).

The number of this bull is 137459, his sire Victor of Browndal 117621, and his dam Constance of Cloughdale 2d, who is recorded o page 369 of volume 39 of the American Shorthorn Herd Book, an whose sire is Bloom's Duke of South Fork 90689. Baron Browndal Fourth traces through his dam to the imported cow Constance whos sire is Bridegroom, number 11203 in the English Herd Book.

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[a] In addition to serving as the official repository of pedigrees, the herdbook is th official organ of the association, through which proceedings of meetings, news of th breed, and other matters of interest are presented to the public.

The following is the recorded form used for cows:

Russella—Red, calved March 20, 1894, bred by Ezra Swain, Noblesville, Ind., got by Czar 107007 out of Dutchess Nonpareil (vol. 37, p. 891) by Lord Nonpareil 63437—tracing to imp. *12th Duchess of Gloster* by Champion of England (17526).

1896, Dec. 14, red b. c., by Secret Victor 121092, Virginia C. Meredith.
1898, Oct. 14, roan c. c., Ruberta (vol. 45, p.) by St. Valentine 121014, J. G. Robbins & Sons.

This cow is recorded in vol. 44, page 854. The form is exactly the same as for bulls, with the omission of the number, and the difference in the position of the cow's name.

A produce table, showing the offspring of the cow, may be appended to her own record, as in this case. This shows the date the calf was dropped, its sex, sire, and breeder. Open numbers refer to the American Herd Book; numbers in marks of parenthesis ( ) to the English Herd Book. Cows are entered in the herdbook under the names of their breeders, which are arranged alphabetically. Names of imported cows are printed in italics. To be eligible to registry in the American Herd Book, all animals must have registered parents, and trace to an imported parent or be registered in the English Herd Book, imported animals tracing to cows registered in the first twenty volumes of that record.

HEREFORD.

As already indicated, all Herefords are numbered consecutively without regard to sex. Cows, therefore, are numbered, and their records are found in the herdbook by this means.

The following is a copy from a page of Vol. XXII, American Hereford Herd Book:

No.	Sex.	Name.	Breeder.	Dropped.
104321	Cow	Penelope	Thos. Clark	October 31, 1899.
104322	....do ...	Polly Peachum.......	....do..............................	January 10, 1900.
104323	....do ...	Bright Lass..........	J. A. Creed	November 6, 1899.
104324	....do ...	Miss Kate Adams.....	E. W. Creed	October 15, 1899.
104325	Bull	Prince Silo	Frank Petz..........................	November 22, 1899.
104326	....do ...	Rob Roy..............	Geo. E. McEathron	February 24, 1899.
104327	Cow	Helen Mar 2d	J. E. Foss..........................	March 8, 1900.
104328	Bull	Wonderful	....do..............................	January 9, 1900.
104329	Cow	Daisy................	Wm. Bowers	March 22, 1899.
104330	....do ...	Hannah E............	Estate of A. Gregory................	September 18, 1899.

No.	Sex.	Name.	Owner.	Sire.	Dam.
104321	Cow	Penelope	Thos. Clark	Le Roy 70778	Peach 40689.
104322	....do ...	Polly Peachum...	.....do	.....do	Patty Lee 55712.
104323	....do ...	Bright Lass.......	J. A. Creed..........	Monitor 80954	Daisy Grove 80953.
104324	....do ...	Miss Kate Adams.	E. W. Creed	Jocko 66942.........	Kate Adams 50145.
104325	Bull	Prince Silo	Frank Petz	Dandy 72195........	Ethel 42966.
104326	....do ...	Rob Roy..........	W. S Billinghurst ..	Guardian 58555.....	Shy Lass 45426.
104327	Cow	Helen Mar 2d	J. E. Foss	Ezra 55999..........	Helen Mar 12412.
104328	Bull	Wonderful	.....do	Fortune, jr., 57153 ..	Cassie 56384.
104329	Cow	Daisy............	G. Hornaday & Co ..	Fortune jr. 57153 ...	Mabel 70274.
104330	....do ...	Hannah E........	Wm. Humphrey	Duke of York 58674.	Miranda 2d 51799.

ABERDEEN-ANGUS.

The Angus Association records bulls and cows consecutively, pul
lishing the pedigree in the catalogue form already shown (page 22
A sample is shown here:

26060. QUEEN MCHENRY 15th. Co

Calved October 11, 1896. Black; some white on udder. Bred and owned by W
A. McHenry, Denison, Iowa.

		Heather Lad 4th 16747.	J. R. Harvey.
Gudgell & Simpson	Jenny June 4775	Knight of St. Patrick 354.	R. C. Auld.
Peter Cran	Jenny Lind 4874	Marshal Var 613	John Hannay.
Peter Cran	Jemima 2d of Morlich 1607.	Champion of Findrack 439.	Captain Fraser
Peter Cran	Jemima of Morlich 1470.	Patrick 440	Peter Cran.
Peter Cran	Fancy of Morlich 612	Balwyllo Eclipse 443	Trus. R. Scott.
Wm. McCombie	Beauty of Morlich 442	Angus 83	Hugh Watson.
Wm. McCombie	Windsor 107	Victor 132	Wm. McCombi
Wm. Fullerton	Queen Mother 41	Panmure 69	Lord Panmure
Wm. Fullerton	Queen of Ardovie 42	Captain 86	Mr. Sime.
	Black Meg 43		

GALLOWAY.

The Galloway form very closely resembles that used by the Shor
horn Association.

12957. GRACE OF WAVERTREE—COW.

Calved March 21, 1890. Bred by Hugh Paul, of Dundee, Minn. Owned b
G. H. Gurley, of Pipestone, Minn. Sired by Hero of Wavertree 3668, out of Im
China 2d 2718 (4403) by Earl of Nithsdale (1035)—China (4402) by Lord of Nith
dale (616)—Meg.

This shows the cow Grace of Wavertree, recorded as 12957, he
sire is Hero of Wavertree 3668, and her dam the imported cow Chin
2d 2718 (4403), by Earl of Nithsdale (1035). China 2d was recorde
in the Scotch herdbook as (4403). Her dam was China (4402), b
Lord of Nithsdale (616), and China's dam was Meg.

DEVON.

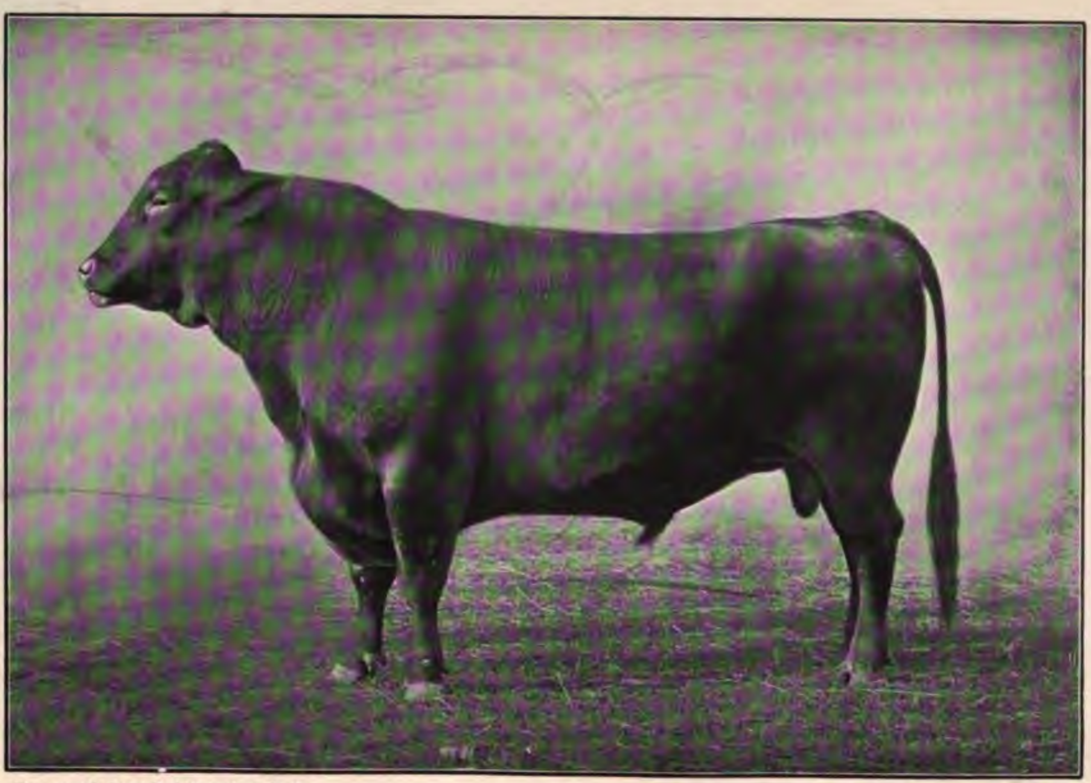
Devon bulls and cows are numbered separately. This present
some very commendable features, no possible danger of confusio
presenting itself. The bull's record below is self-explanatory.

6183. SPARTAN.

Calved February 1, 1894. Bred by Jos. Hilton & Sons, New Scotland, N. Y. B
Lord Flemington 4773. Dam Sturdy Dame 7314.

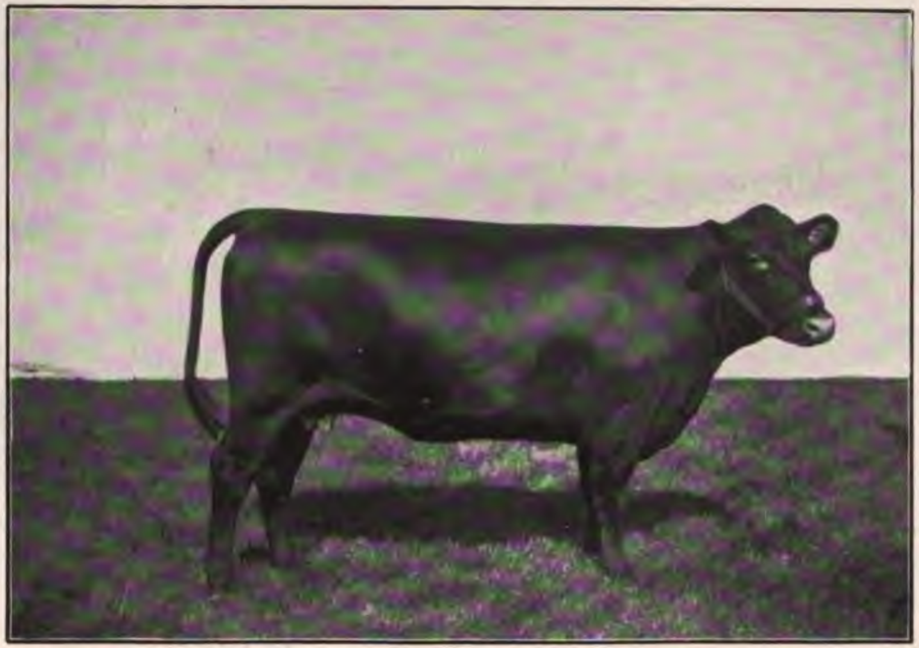
RED POLL.

The Red Poll herdbook appears somewhat more complicated at firs
sight than the other herdbooks. Bulls and cows are entered separately



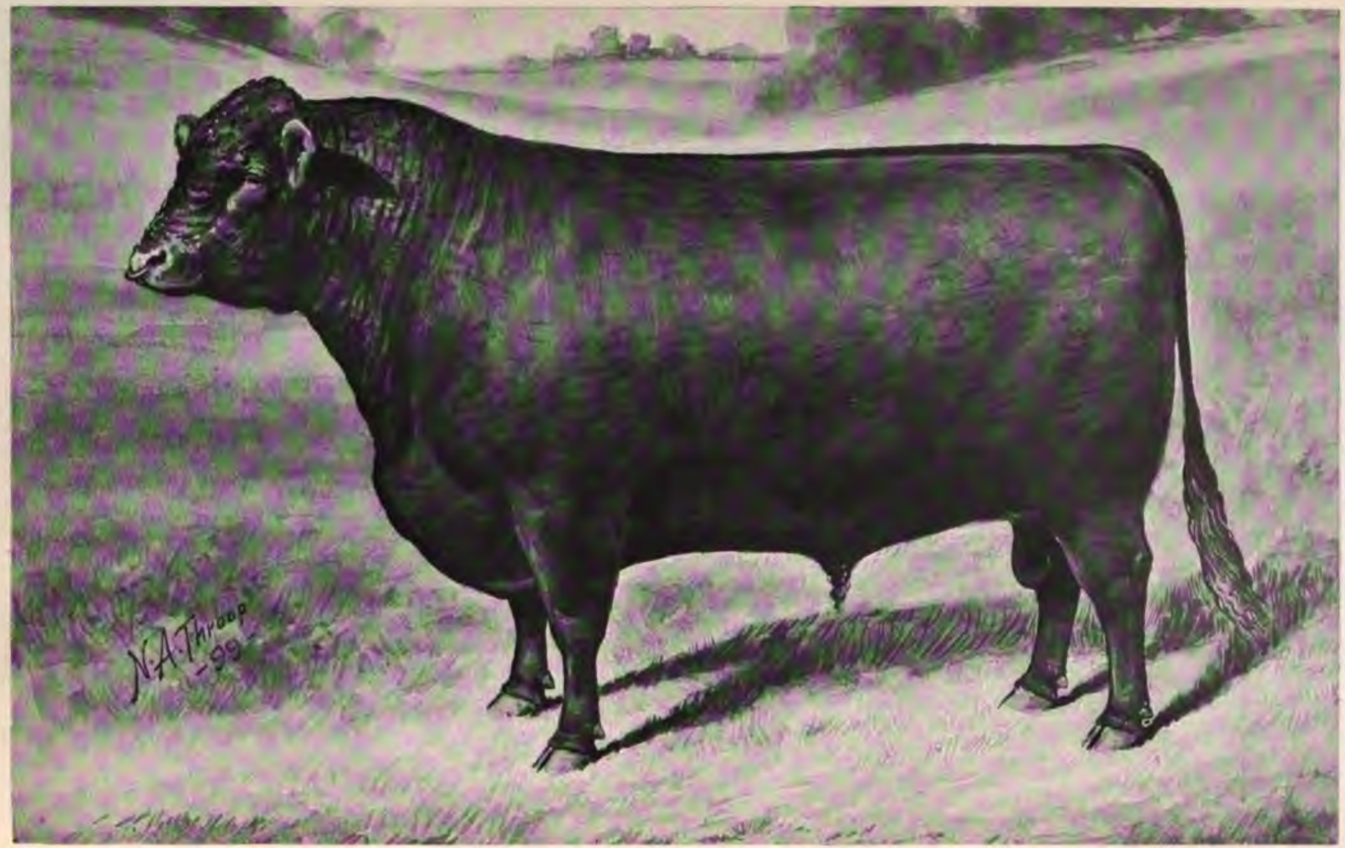
Photograph furnished by Andrew Bros.

RED POLLED BULL DEMON.



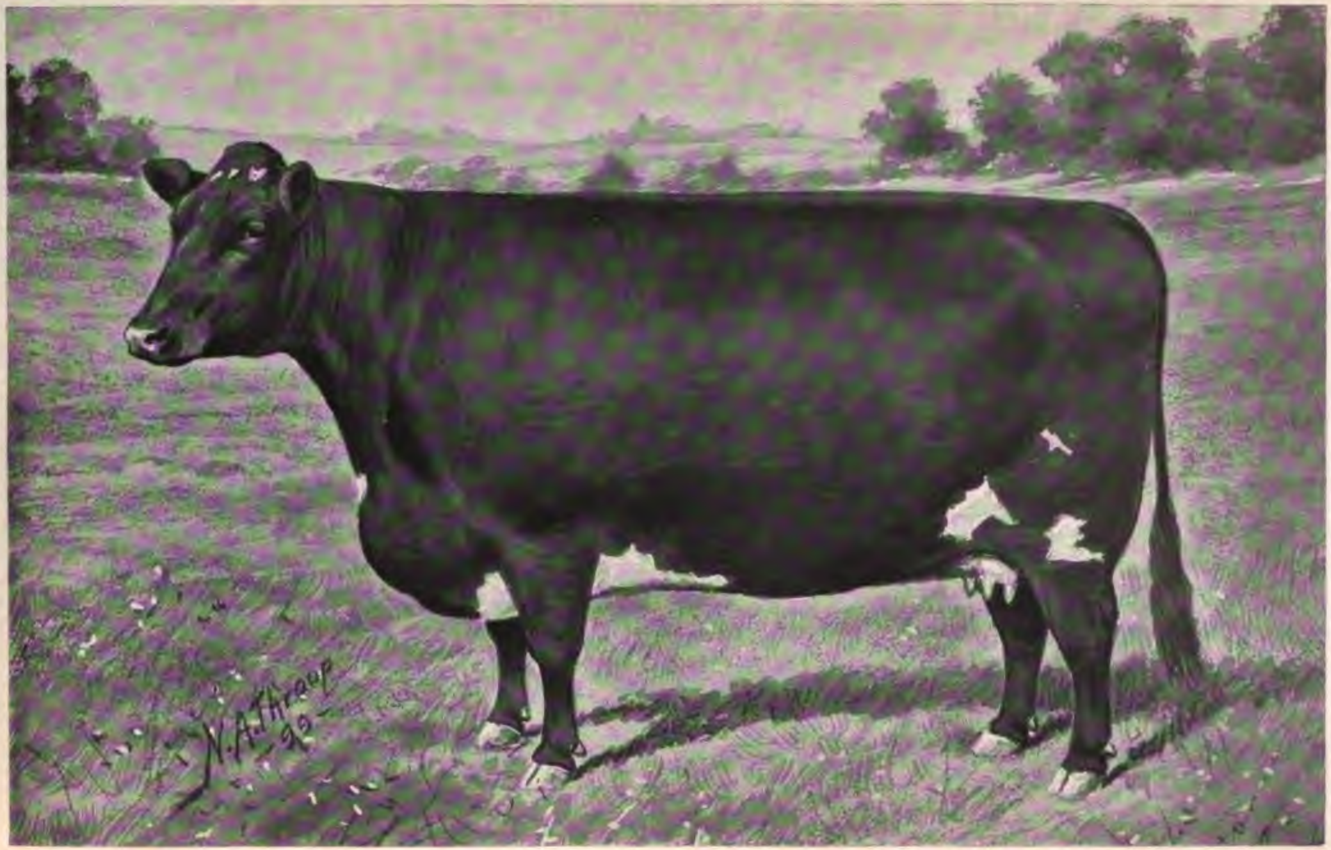
Photograph furnished by Wallace's Farmer.

Red Polled Heifer Lida Falstaff 3d.



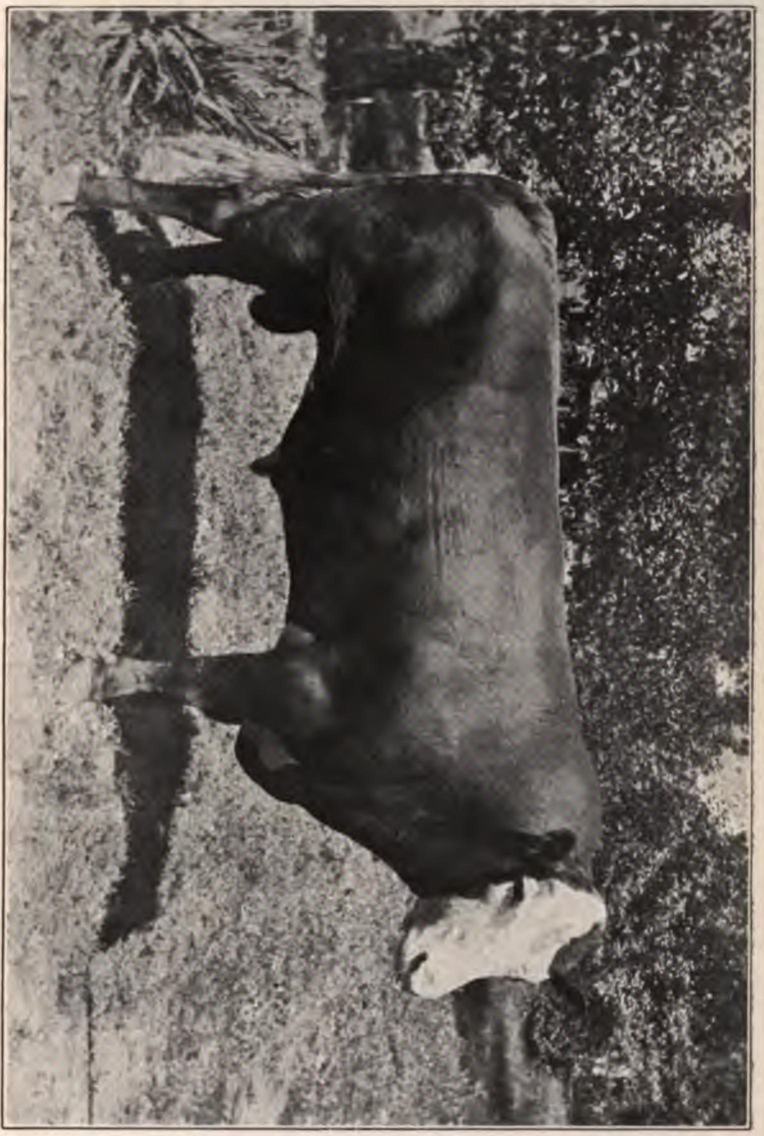
Photograph furnished by J. H. Miller.

POLLED DURHAM BULL GOLDEN GAUNTLET.



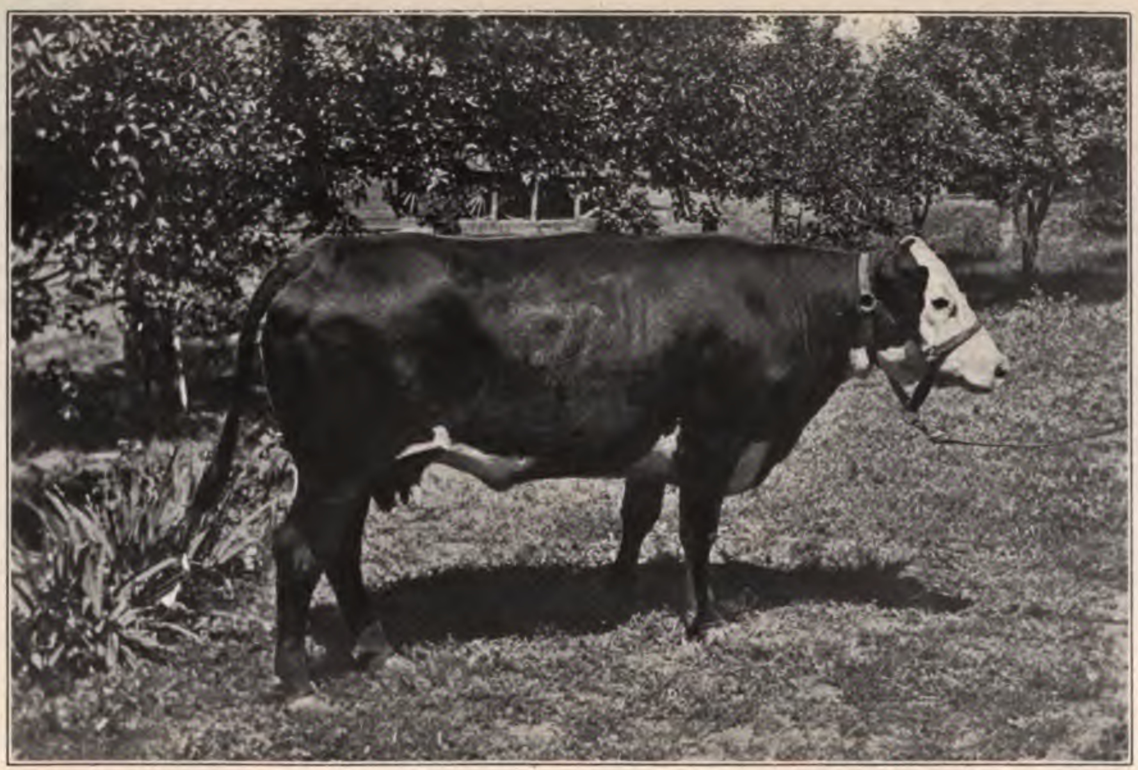
By courtesy of J. H. Miller.

POLLED DURHAM COW GOODNESS 15TH.



Photograph furnished by Gen. W. W. Guthrie.

POLLED HEREFORD BULL.



Photograph furnished by Gen. W. W. Guthrie.

POLLED HEREFORD COW.

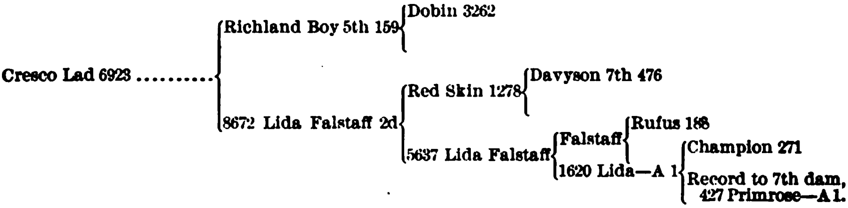
by numbers; the numbers of bulls being placed at the right margin, while those of the cows are at the left. In the pedigree itself, numbers of dams precede the name instead of following, as is usually the case. The foundation tribes are indicated by letters and families within these tribes by numbers. After the name of each female record is her tribe letter and family number. The tribe letter precedes the family number, except when pedigrees run to the old Norfolk and Suffolk stock instead of to the herd of some breeder of prominence, the numbers in such instances referring to the different herds of this old stock instead of individual animals. Thus, we will have A 1, C 4, M 2, but 1 Norf, 2 Suff. "The earliest numbers are assigned to cows having the best recorded pedigree." The letters "s" and "d" in a pedigree stand for "sire" and "dam," respectively.

The form for bulls is as follows:

Cresco Lad. 6923.

Calved October 2, 1899: breeder, S. A. Converse: s. Richland Boy 5th 5159 by Dobin 3462; d. 8672 Lida Falstaff 2nd by Red Skin 1278 by Davyson 7th 476; 2nd d. 5637 Lida Falstaff by Falstaff by Rufus 188; 3rd d. 1620 Lida—A 1 by Champion 271. Record to 7th d. 427 Primrose—A 1.

Tabulated, this pedigree would appear:



Cows are recorded under the following form:

14503. Beeless—1 Norf.

Calved August 20, 1899: breeder, V. F. Hills: s. Brutus 4275 by Lucre 3193; d. 6912 Bee by Delaware Chief 1781 by Duke of Dayton 663; 2nd d. 3248 Beatrice by Brutus Duo 463 by Brutus 269; 3rd d. 2577 Troublesome—1 Norf. Record to 4th d. Pond—1 Norf.

POLLED DURHAM.

The Polled Durham herdbook creates much interest, especially when records of double-standard animals are read. The appended record is one of these:

165. Ottawa Phyllis Duke. 116668.

Red, calved April 19, 1893, bred and owned by W. S. Miller, Elmore, Ohio, got by Ottawa Duke x 185 109292, out of Phyllis Lass 2nd, vol. 38, by 2d Duke of Barington, 50877—Phyllis Lass by Bates's Lad 28567—Gentle Annie 32nd by Airdrie 4th 11268—Gentle Annie 4th by Gay 8165—Gentle Annie 2nd by Tycoon 9236—Gentle Annie by Challenger 324—Princess by Prince Albert 2nd 857—Susan Turley by Cossack (3503)—Catharine Turley by Bulmer (1760)—imp. *Young Phyllis* by Fairfax (1023).

The number (165) at the upper lefthand corner, printed in bold-faced type, is that of the Polled Durham herdbook; that on the opposite side (116668) is the American Shorthorn number. This shows how closely the work of the Polled Durham approaches the Shorthorn plane. In addition to the hornless requirement, the presence of more and more Shorthorn blood is being required.

Pedigrees of bulls are inserted consecutively; those of cows under the names of their breeders, which are arranged alphabetically.

The cross (x) before a number in the Polled Durham herdbook indicates registry in that association, thus distinguishing it from the Shorthorn. The same rule is kept regarding English numbers as in all other associations, namely, placing them in parentheses.

BREEDERS' ORGANIZATIONS.

American Shorthorn Breeders' Association, John W. Groves, secretary, Springfield, Ill.

American Hereford Cattle Breeders' Association, C. R. Thomas, secretary, 225 West Twelfth street, Kansas City, Mo.

American Aberdeen-Angus Breeders' Association, Thomas McFarlane, secretary, Harvey, Ill.

American Galloway Breeders' Association, Frank B. Hearne, secretary, Independence, Mo.

American Devon Cattle Club, L. P. Sisson, secretary, Newark, Ohio.

American Sussex Association, Overton Lea, secretary, Nashville, Tenn.

The Red Polled Cattle Club of America (incorporated), J. McLain Smith, secretary, Dayton, Ohio.

American Polled Durham Breeders' Association, Fletcher S. Hines, secretary, Indianapolis, Ind.

American Polled Hereford Cattle Club, Warren Gammon, secretary, Des Moines, Iowa.

Brown Swiss Cattle Breeders' Association, N. S. Fish, secretary, Groton, Conn.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY—BULLETIN No. 35.
D. E. SALMON, D. V. M., Chief of Bureau.

ELEVEN MISCELLANEOUS PAPERS

ON

ANIMAL PARASITES.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1902.

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Animal Industry,
Washington, D. C., December 2, 1901.

Sir: I have the honor to transmit herewith, and to recommend for publication as Bulletin No. 35 of this Bureau, the manuscripts of eleven miscellaneous articles on animal parasites. Three of the parasites mentioned are Asiatic and are likely to be found affecting some of the troops who have served in China or the Philippines. These three parasites are not familiar to American physicians in general, since they are not usually described in American text-books. One of the other parasites is the common vinegar eel, which is now reported as a parasite of man, and two parasites are discussed which are more or less problematic, but have been mentioned in many zoological and medical writings.

While the work of this Bureau is primarily in the field of veterinary medicine, it is impossible entirely to avoid references to diseases which affect man. This is particularly the case with the animal parasites. Not only is it impossible to draw a sharp line between the parasites of man and those of the domesticated and wild animals, since the organisms in question are in many cases transmissible from one to the other, but as this is the only service in the Government which supports a laboratory devoted to a study of medical and veterinary zoology, we are constantly being called upon by the physicians of the country, the State boards of health, and the various departments of the Government for information or cooperation in this field of science.

Respectfully,

D. E. Salmon,
Chief of Bureau.

Hon. James Wilson,
Secretary.

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ELEVEN MISCELLANEOUS PAPERS ON ANIMAL PARASITES.

TREATMENT FOR ROUNDWORMS IN SHEEP, GOATS, AND CATTLE.[a]

By Ch. Wardell Stiles, Ph. D.,
Pathologist of Bureau of Animal Industry.

Sheep, goats, and cattle suffer from the effects of roundworms. This is especially true during wet years. These parasites are found particularly in the lungs, the fourth stomach, and the bowels, and, when present in large numbers, they may result in the death of 5 to 50 per cent of a flock. For some of these parasites, treatment is possible; but for others, treatment has not been found altogether satisfactory.

TREATMENT.

Roundworms which live free in the fourth stomach or in the bowels may be expelled by using various drugs in drenches. A long list of medicines might be mentioned, but many of the drugs most highly recommended frequently fail to effect a cure. Failures are due to several causes: The drug itself may be of little or no value; it may not be administered in the proper dose; it may not be administered in the proper way.

One of the most commonly used drenches is turpentine, but more satisfactory results are obtained from the use of coal-tar creosote, or coal-tar creosote and thymol, or gasoline, or bluestone.

COAL-TAR CREOSOTE.

I have had excellent success in treating sheep, goats, and cattle for the twisted wireworm (*Strongylus contortus*) with a 1 per cent solution of coal-tar creosote. The medicine is easily prepared and quite inexpensive. It may be purchased of a druggist in small quantities of 1 ounce or in pound bottles. One ounce is sufficient for about 20 adult sheep, and the cost of the treatment is less than one-half a cent per head; if creosote is purchased by the pound the cost is reduced to less than one-quarter of a cent per head. If creosote is called for at a drug store, beechwood creosote will usually be di pensed. This is more expensive than the coal-tar creosote, and not s satisfactory in expelling worms.

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[a] Published also as Circular No. 35 of this Bureau, 1901, pp. 1–8.

A 1 per cent solution of coal-tar creosote is made as follows:

	Ounces.
Coal-tar creosote	1
Water	99

Twisted wireworms (*Strongylus contortus*) taken directly from tl stomach of sheep or cattle die in one-half to one and a half minut when immersed in this solution.

If, in dosing, this liquid enters the lungs, the animal may succun in a few minutes. If the dosing is performed carefully, as much as ounces may be given to a full-grown sheep without fatal results. I some cases, however, the animal shows ill effects, from which it usuall recovers within half an hour. Six ounces were given to a number sheep without the slightest ill effects. The following table gives tl doses of the 1 per cent mixture which were used in about 400 cas without ill effects:

Lambs 4 to 12 months old	2 to 4 ounces (about 60 to 120 c. c.).
Yearling sheep and above	3 to 5 ounces (about 90 to 150 c. c.).
Calves 3 to 8 months old	5 to 10 ounces (about 150 to 300 c. c.).
Yearling steers	1 pint (about 480 c. c.).
Two-year-olds and above	1 quart (about 960 c. c.).

Sheep, goats, and calves which received this treatment showed marked improvement a few days after receiving a single dose.

In experiments with creosote at Washington, D. C., sheep wer drenched with a 1 per cent solution and killed immediately afterward: Upon opening the fourth stomach, it was found that the wireworm present were dead. In some cases where this was tried later, the wireworms were found to be still alive; but it is believed that the explanation of this fact has now been discovered. (See below, page 13.) Creosote does not appear to have much effect upon the worms below th stomach.

If an overdose is given by mistake, and if the sheep appears severel affected by it, the animal should be placed in the shade. Even in som cases of very severe overdoses, where the animal is practically give up for dead, it may entirely recover within an hour or so.

COAL-TAR CREOSOTE AND THYMOL.

If, in addition to the stomach worms, the animals were suffering fro severe infection of bowel worms, such as the hook worms, better result

Thymol is expensive, the price varying in different parts of the country. It may be purchased by the ounce, but it is considerably cheaper if purchased by the pound. Avoid using thymol which has become yellowish or reddish and which has run together in the bottle so as to form a solid mass. Powder the crystals and have the druggist measure 30 grains. Give 30 grains to a lamb, about 50 grains to a yearling, and 70 to 80 or 100 grains to older sheep, according to size.

In experiments I have had excellent results with a single dose of the creosote and thymol mixture. If necessary, however, the dose could be repeated after a week.

BLUESTONE.

In the recent experiments with bluestone by Hutcheon, in South Africa, against wireworm disease in sheep, it has been claimed that the same treatment expels tapeworms.

Caution.—Repeated accidents have happened from using too strong a solution or too large doses, or in giving it in such a way that the medicine gained access to the lungs. Dr. Hutcheon's method of procedure, which is here given in detail, is safe in the hands of the average farmer if the directions are followed. The person who gives stronger doses than indicated, or who is careless about the measurements, must take the entire responsibility of the miscarriage of the treatment. It is a good plan to make up a smaller quantity of the solution and try it upon a few sheep before attempting to dose the entire flock.

(*a*) *To prepare the mixture.*—Hutcheon has changed his formula slightly from time to time. On February 21, 1895, he gave the following proportions:

Dissolve 1 pound avoirdupois (1 pound=16 ounces) of good commercial powdered bluestone (sulphate of copper) in 2 imperial quarts (=2⅖ quarts, United States) of boiling water; when the bluestone is thoroughly dissolved, add 6½ imperial gallons (=26 imperial quarts =7⅘ United States gallons=31⅕ United States quarts) of cold water, making in all 7 imperial gallons (or 8⅖ United States gallons) of water.

In 1897 he changed the strength of the solution to 1 pound of bluestone to "40 whisky bottlefuls of water." This is practically 1 pound to 7½ imperial gallons (=9 United States gallons=about 34 liters, metric) of water.

Use only bluestone which is of a uniform blue color; avoid that which is in conglomerate lumps with white patches and covered with a white crust.

The equivalents of 1 pound avoirdupois and of 7 imperial gallons in other weights and measures are as follows: One pound avoirdupois=1 pound 2 ounces 280 grains of apothecaries' (also is equal to 453.59 grams of metric weight). Seven imperial gallons=8 gallons 3 pints 3 fluid ounces 3 fluid drams 56 minims (or practically 8 gallons 3¼ pints, or 8⅖ gallons) of apothecaries' (also is equal to 31.804409 liters, metric system).

The farmer is cautioned against guessing at the weights and measures, for this is sure to result either in too strong a solution, which will kill his animals, or too weak a solution, which will fail to be effective. Scales and measures should be tested before they are used. If reliable scales are not at hand, buy the bluestone already weighed and have the exact weight in avoirdupois, apothecaries', or metric system marked on the package.

If a smaller quantity than the above is desired, this can be made up in the proportion of 1 ounce avoirdupois of bluestone to 4¼ United States pints of water.

(*b*) *Preparation of the animals.*—Let the sheep or cattle fast twenty to twenty-four hours before dosing. If the fast is thirty hours (longer fasts are dangerous), an extra half gallon or gallon of water should be added to the solution, as animals are more liable to suffer after a long fast.

(*c*) *Size of the dose.*—Hutcheon has several times changed the size of the doses he advises, in some papers basing it on the imperial fluid ounce and in others on the tablespoon. The doses for sheep (in imperial ounces and in tablespoons) given below are his most recent (January 10, 1895) recommendations, and, though based upon a solution with 5 per cent less water than the first solution given above, they may be used for the weaker mixture.

I have given the metric doses to a number of sheep and goats, and the animals showed no ill effects. On the contrary, they gained in weight.

Size of dose for animals at several ages.

Age of animals.	Approximate equivalents.			
	Tablespoons.[a]	Imperial.	United States apothecaries.	Metric.
Lamb 3 months old	1	About ¾ fluid oz	About ⅝ fluid oz	About 20 c. c.
Lamb 6 months old	2	About 1½ fluid oz	About 1⅜ fluid oz	About 40 c. c.
Sheep 12 months old	3	About 2¼ fluid oz	About 2 fluid oz	About 60 c. c.
Sheep 18 months old	4	About 3 fluid oz	About 2⅝ fluid oz	About 80 c. c.
Sheep 24 months old	4½	About 3⅜ fluid oz	About 3 fluid oz	About 90 c. c.
Calf 3 months old	4½ to 5	About 3⅜ to 3¾ fluid oz.	About 3 to 3⅜ fluid oz.	90 to 100 c. c.
Calf 6 months old	5 to 5½	About 3¾ to 4⅛ fluid oz.	About 3⅜ to 3¾ fluid oz.	100 to 110 c. c.

[a] "The tablespoon I refer to is the modern, full-sized tablespoon (6 fluid drams). The medicinal tablespoon contains exactly half an ounce."—Hutcheon.

Be careful not to give a two-toothed, young sheep as much as a full-grown, four-toothed sheep. Mistakes may occur in judging the age unless the teeth are examined.

The doses should be measured off in bottles and the point of each dose plainly marked with a file.

(*d*) *Dosing.*—In dosing, use long-necked bottles—as castor oil bottles, Worcestershire sauce bottles, or anchovy sauce bottles—or, better still, a drenching tube.

Let one person place the sheep on its haunches and take its fore legs in his left hand while he steadies the head with the right. Another person inserts the neck of the bottle into the mouth. The head of the sheep should not be raised too high, as in that case the solution may enter the lungs and kill the sheep. A safe rule is to raise the nose to the height of the animal's eyes.

(*e*) *Overdose.*—If, after dosing, any of the sheep seem to be suffering from an overdose—indicated by lying apart from the flock, not feeding, manifesting a painful, excited look and a spasmodic movement in running, walking with a stiff gait, purging, the discharge being a dirty brownish color—take them away from the flock to a shady place and dose with laudanum and milk as follows: For a lamb 4 to 6 months old, 1 teaspoonful of laudanum in a tumbler of milk; for a sheep 1 year old, 2 teaspoonfuls of laudanum in a tumbler of milk. Repeat half the dose in two to three hours, if necessary.

(*f*) *After-treatment.*—The animals should not be allowed water for several hours after receiving their dose.

I have used bluestone on several occasions, and, although it proved more or less successful, it was not so satisfactory as creosote or as gasoline.

GASOLINE.

Gasoline has recently gained considerable reputation as a vermifuge. I have used it in a number of cases and have found the claims made for it to be more or less justified. Three objections, however, arise to its use, and I can not, therefore, consider it an ideal treatment. These objections are:

(1) Not less than three doses, and usually four to six, are required to expel the worms. Its use involves a great expenditure of labor, and it is therefore impracticable on the large ranches.

(2) While several doses are not necessarily injurious to the stock, still, if the doses are large, repeated drenches cause a more or less severe congestion of the bowels. Not only that, but repeated handling of range sheep, with the necessary preliminary treatment of withholding food, is injurious to the animals.

(3) If used on animals suffering from pleurisy, it is likely to be fatal. I have had several fatal cases of this kind.

Nearly all vermifuges are, however, more or less poisonous in one way or another, and gasoline, if properly used, is not particularly dangerous. The necessity of repeating the dose from four to nine times, in order to effect a complete cure, will, however, militate against its general adoption.

If gasoline is used, ammonia also should always be kept on hand. If an animal is suddenly overcome by the effects of gasoline, a small amount (a teaspoonful or so) of aromatic spirits of ammonia may be given in water as a drench, to be repeated if necessary, and will usually result in the recovery of the patient.

The usual doses of gasoline for stomach worms are:

	Ounce.
Lambs	¼
Sheep	½
Calves	½
Yearling steers	1

I have used these doses repeatedly without any serious effects Each dose is mixed separately in linseed oil, sweet milk, flaxseed tea or an egg, and given as a drench. If given directly in water, it i more severe on the patient.

An ounce and a half of gasoline has resulted in the immediate deat of a full-grown ewe, but in some cases I have given to full-grow sheep as high as 2 to 3 ounces without serious results. I have als given as much as 3 ounces to a yearling steer, and 7 ounces (within a hour) to a horse, without causing serious symptoms. I have also give 3 ounces to a full-grown chicken; the animal became very stupid fo a time, but eventually recovered. On the other hand, in one case yearling steer, in apparently quite healthy condition, succumbe within two minutes after a dose of 1½ ounces. These large doses wer given experimentally to determine the danger point, and they shoul never be used by farmers in treating stock.

In one instance a steer was suddenly overcome because the man wh was administering the dose for me accidentally held the head too hig and the medicine entered the lungs. The animal fell immediately and appeared to be almost dead. I happened to have a hypodermic syringe with me and some tablets of sulphate of strychnine. A hypodermic injection of this substance was immediately given, and within five minutes the animal was feeding as if nothing had happened. This incident led me to overdose several animals with gasoline and then to try to revive them with hypodermic injections of strychnine. In all cases the treatment was successful. It is thus seen that injury from gasoline may be counteracted by either aromatic spirits of ammonia or by strychnine.

METHODS OF DRENCHING ANIMALS.

The popular method of drenching is with a bottle. The use of a drenching tube is, however, far more satisfactory. A drenching tube may be made by taking an ordinary tin funnel, which may be purchased for 5 or 10 cents, and inserting the narrow end into one end o a rubber tube or hose, say 3 feet long and three-eighths or one-hal inch in diameter; into the other end of the rubber tube is inserted a piece of three-eighths-inch brass or iron tubing about 4 to 6 inches long.

The metal tube is placed between the animal's back teeth, and the sheep or calf is allowed to bite upon it. The water or drench is poured into the funnel, which may be held by an assistant or fastened to a post at a convenient height. The man who holds the metal tube between the animal's teeth can control the animal's head with the left hand, and by holding the tube in the right hand, near the point of union of the rubber and metal tubes, he can easily control the flow of the fluid by pinching the rubber hose. Care must be taken not to hold the patient's nostrils closed, otherwise the dose will enter the lungs.

It is usually advisable to let animals fast twelve to sixteen hours before dosing.

POSITION OF THE ANIMAL DURING DRENCHING.

Different persons prefer to hold the animals in different positions during drenching. Thus (1) the animal may be left standing on all four feet; or (2) it may be placed on its haunches, one man holding its back up against his own body; or (3) it may be placed directly on its back on a sloping piece of ground, its head being in a direct line with its back, and higher than its rump; or (4) it may be placed upon its side, the head being brought around so that the horns are squarely on the ground; the operator may then place one foot on one of the horns (especially in the case of semiwild cattle) and thus aid in holding the animal still.

So far as administering the doses is concerned, the position on the back (3) is by far the easiest in the case of sheep, and the side position with head down (4) is the easiest in dosing cattle; furthermore, in these positions there is much less danger of an accident by getting the dose in the lungs. If animals are dosed standing or on their haunches, the nose should never be allowed to go above the eyes; otherwise the drench may pass down the windpipe into the lungs.

By dosing sheep with water colored red and blue with dyeing material, and killing the animals immediately after the liquid was swallowed, the following results were obtained:

If the dose was given with the sheep standing (1), almost the entire quantity went directly into the fourth stomach; if the sheep was placed on its haunches, the fluid passed in part into the fourth stomach and in part into the first (the paunch); if the sheep was placed directly on its back (3), or if a steer was placed on its side (4) with head down, almost the entire dose passed into the first stomach (the paunch). If the animal, even when standing (1), struggled to a considerable degree, a portion of the fluid passed into the paunch.

It will be immediately apparent that these facts are of practical importance in dosing. If, for instance, gasoline, turpentine, or creosote is used, better results may be expected if the sheep is dosed standing (1).

PREVENTIVE MEASURES.

First. Every ranch should have a hospital pasture situated on high, dry ground, well drained, and without any pools or ponds; this should be supplied with raised troughs for watering and feeding, and the water supply should come from a well. This pasture should not drain into any pasture in which healthy stock are feeding.

Second. As soon as any sick animal is noticed in the large pasture it should be immediately separated from the healthy stock and taken to the hospital pasture. To allow sick animals to run at large with healthy stock means to permit deliberately the spread of infection in the pastures and thus endanger the uninfected animals.

Third. Proper watering places should be supplied in the large pastures by digging wells and erecting windmills to pump the water into tanks. These tanks should be raised above the ground, so that they can not become contaminated by the animals' droppings being washed into them by rains and floods.

Fourth. Select high, sloping ground for pasture when this is possible. Low pastures should be properly drained.

Fifth. When practicable, burn the pastures regularly, thoroughly, and systematically. The heat from the burning grass will kill many of the eggs and young worms on the grass, ground, and in the droppings.

Sixth. As parasites are more fatal to young animals than to old, a liberal supply of oats or some similar food will aid in giving to young animals strength which will enable them to withstand the infection. A daily allowance of, say, half a pound of oats per lamb ought to reduce the mortality. At first they may not be inclined to eat it, but they will soon become accustomed to it. This simple precaution is reported as very effectual in New Zealand.

Seventh. Keep plenty of salt accessible to the animals. Some men add slaked lime to the salt; others add one part of sulphate of iron to 100 parts of salt. As a matter of experience, salt kills many young worms.

For the minute worms encysted in the fourth stomach, and also for those forming nodules in the bowels, no treatment is known.

For worms in the lungs numerous methods of treatment have been suggested, and success has been claimed for certain remedies. None that I have tried, however, has proved satisfactory.[a]

No practical medicinal treatment is known for the flatworms of the liver, and the treatment for tapeworms in the bowels of ruminants is frequently unsuccessful.

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[a] See Stiles, 1902, Verminous diseases in cattle, sheep, and goats in Texas < Seventeenth Annual Report of Bureau of Animal Industry (1900), 1902, pp. 356–379.

THE DISINFECTION OF KENNELS, PENS, AND YARDS BY FIRE.

By Ch. Wardell Stiles, Ph. D.,
Pathologist of Bureau of Animal Industry.

In a recent outbreak of uncinariasis among the blue foxes (*Vulpes lagopus*) of the National Zoological Park, at Washington, D. C., and of infection by the twisted wireworm (*Strongylus contortus*) among the ruminants of the same institution, the problem of disinfecting the yards presented itself. In the diseases in question I had to deal with nematode eggs and embryos, which experience has shown to be difficult to kill by the ordinary methods of disinfection.

Experiments and experience in Texas have shown fire (by burning the pastures) to be a cheap and practical means of disinfecting a pasture infested with these two genera (*Uncinaria* and *Strongylus*), and the question arose as to how fire could be safely used for the same purpose in pens, kennels, and yards.

It is evident that any method which involved the pouring around of an inflammable oil was excluded as being too dangerous and too expensive. The use of a gasoline burner, such as is used in repairing asphalt pavements, suggested itself, and was immediately tried. Unfortunately, the instrument is clumsy and difficult to handle, but the heat it developed on the ground showed that the general principles involved were applicable. The surface of the ground was thoroughly scorched, and all particles of wood, straw, pine needles, etc., were burned. From the temperature to which the surface of the ground was heated (tested by the hand), it is clear that any superficially situated nematode eggs or larvæ would be immediately killed. As stated elsewhere, I have found in Texas that the burning of the grass on the prairie generates sufficient heat practically to disinfect the pastures of parasitic nematodes—a conclusion based, not upon observing the dead nematodes, but upon the fact that an outbreak of nematode infection in cattle may be checked by this method. The conclusion appears justified, therefore, that outbreaks of nematode disease in kennels, zoological gardens, etc., can be checked by similar measures.

Owing to the price charged for the asphalt burners, and to their unwieldiness, I began the construction of a new and cheaper apparatus, one more simple in form and more convenient to handle; but before this instrument was completed Dr. L. O. Howard, entomologist of this Department, called my attention to an apparatus already in existence which will apparently answer the purpose. The instrument in question is the so-called "cyclone burner," and is described by Forbush[a] as follows:

> "Professor Fernald had recommended in 1889 that the eggs of the moth be scraped from the trees and burned. This was the most effectual method of egg-killing pursued by the first commission. During the spring of 1891 it was used by the second

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[a] Forbush & Fernald, 1896, The Gypsy Moth, *Porthetria dispar* (Linn.). A report of the work of destroying the insect in the Commonwealth of Massachusetts, etc., Boston, pp. xii+495+c. 66 plates, 5 maps, and figs. in text.

commission and later by the employees of the State board of agriculture. The e were scraped off or cut away from the objects upon which they rested, placed in cans, and burned in stoves or brush fires. A fierce heat is required to insure th destruction. When exposed to such heat they finally burst with a snapping lik bunch of miniature firecrackers or the cracking of corn in a popper. Whenever eggs were very numerous in undergrowth or waste land, fire was run through dead leaves and débris as an experiment; but this method seemed to have little eff as the heat was not sufficiently intense. The hairy covering of the egg clusters see to possess remarkable nonconductive properties, rendering the eggs almost impervi for a time to sudden intense heat. Even with the hottest fire that can be applie the egg clusters, some minutes are required to destroy them utterly. A running br fire merely scorched the outside of the cluster, killing perhaps a few of the eggs the external layer, but leaving the majority uninjured. Experiments were n made with crude petroleum, by spraying it over the ground and vegetation by me of watering pots and then igniting it. The fire thus made was fierce enough destroy the small undergrowth and the upper layer of leaves, together with most the eggs, but such egg clusters as remained under roots or rocks were not injur Considerable oil was wasted by soaking into the ground, and the remainder did give the degree of heat which is obtained atomizing. Experiments were then m with a view of perfecting a burning mach which would incinerate all undergrowth a given tract. The first experiments w not entirely successful, as the machines w either too cumbersome or could not be u on rough or uneven ground. It was fou necessary to provide an apparatus whi would distribute the oil in a spray, as wh thus thrown in fine particles in the air a ignited, it formed an extremely hot gas fla and was consumed to the best advanta For economy's sake, such an apparatus must be light enough to be carried and operat by two men, as wagons could not be driven over much of the ground upon which t work was done. Experiments were made with the cyclone nozzle. An oil spray fr this nozzle, when ignited, was found to give a very hot and effective flame. Cru oil was first used as a burning fluid, but as it is very objectionable on account of rank odor, paraffin-gas oil was substituted later. This oil has less odor and bur to better advantage, but is somewhat more expensive. A 15-gallon tank, whi could be readily carried about by two men, was provided. On such a tank a Johns pump, with a fine strainer placed over the suction pipe, was mounted and a sh hose, of the kind made for the delivery of oil, was attached. Ordinary rubber h is worthless for such a purpose, as it is soon destroyed by the corrosive action of t oil, and in the meantime the disintegrated particles frequently clog the nozzl A pole, consisting of an iron pipe 12 feet long, braced by being surrounded wood for three-fourths of its length, was coupled to the hose. (See fig. 1.) No sold could be used in the fittings of the pipe or nozzle, as the fierce heat of the fla would fuse it. The wooden cylinder into which the pipe was thrust was $1\frac{1}{4}$ inch in diameter. The wood, being a nonconductor of heat, was of great convenience

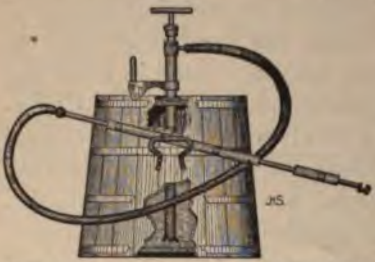

FIG. 1.—Tank, pump, and hose for spraying with oil.

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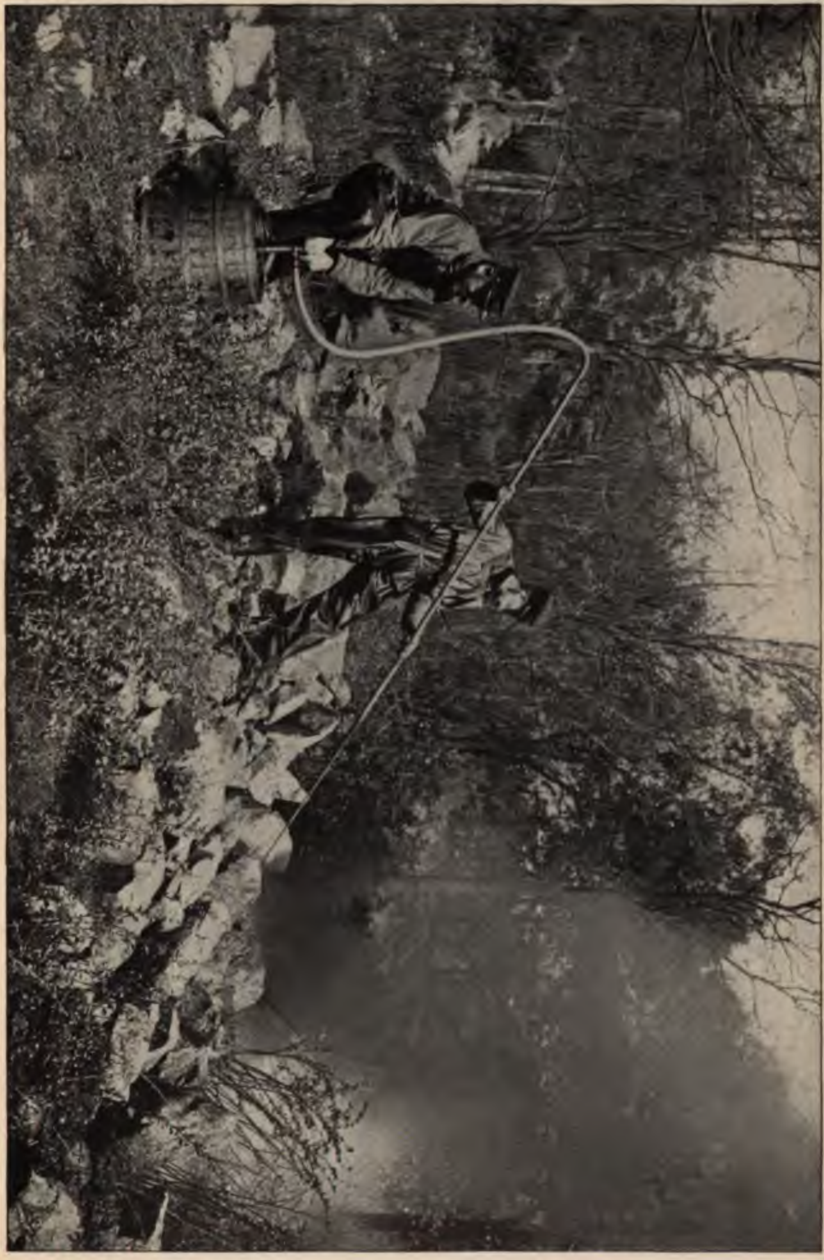
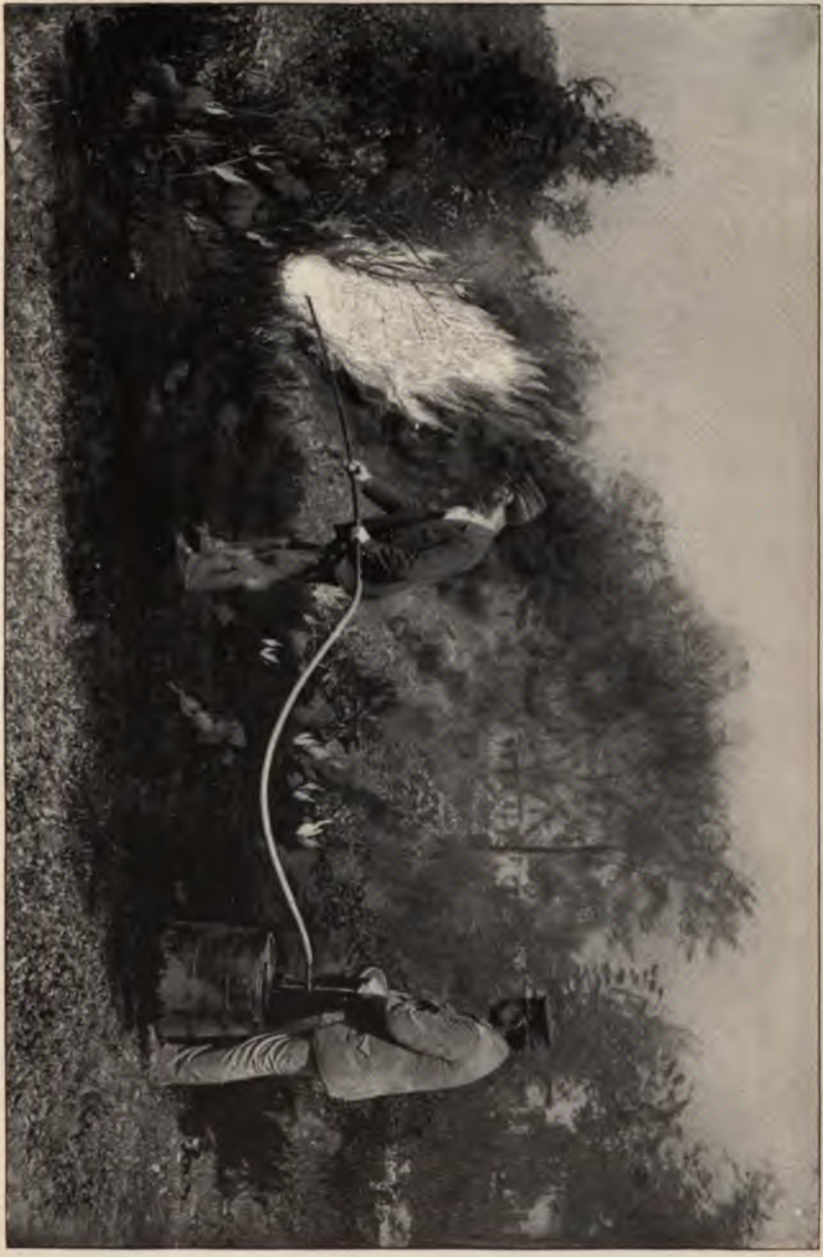
[a] The best oil hose that can be obtained will soon become corroded, clogging t nozzle. If an automatic clearing nozzle could be devised which would withstand t heat, much time might be saved which is now necessarily used in clearing the nozz



SPRAYING WITH BURNING OIL.

PLATE II.



SPRAYING WITH BURNING OIL.

handling the pole. The end of the pipe was fitted with a cyclone nozzle. The aperture of this nozzle is very small, hence the value of the strainer before mentioned, which prevents the entrance of foreign substances with the oil and a consequent clogging of the nozzle. The two men handling this apparatus filled the tank with oil and then carried it to the spot where the burning was to be done. One man then operated the pump while the other handled the pole and nozzle. As soon as the pump was started a fine spray of oil was thrown into the air and ignited by a match. By means of the pole the resulting fierce flame was carried among the undergrowth and over the ground, destroying every living thing in its path. When this work was carefully done no eggs escaped, except such as were hidden in ledges or holes in the ground. An attempt was made also with this apparatus to destroy eggs which had been deposited in stone walls. (See Pl. I.) Though this was partially successful, in so far as the fire reached and destroyed most of the eggs, those which were deposited under the lower stones of the wall were unharmed, even though in many cases the stones were cracked and broken by the heat. As it sometimes became necessary to use this apparatus in burning out walls near growing crops, a sheet-iron screen was set up between the flame and the growing vegetables, to protect them from the heat, being moved along the wall as the work progressed. Burning was thus done without any resultant injury to the gardens. This machine, which has been named the 'cyclone burner,' would be most useful in checking invasions of crawling pests, like the army worm." (See Pl. II.)—*Forbush & Fernald, 1896, pp. 119-121.*

It is well known that there is a high mortality among the animals in zoological gardens, and the expression that "wild animals do not do well in confinement" is common in zoological writings. From the postmortem examinations I have made on animals which have died in the National Zoological Park in this city, I am convinced that parasitic diseases play no insignificant rôle in this death rate. This is perfectly natural. In nature an animal roams over a considerable surface of ground, and the infection he spreads is therefore scattered. In a zoological garden this infection, with eggs and embryos of parasitic worms passed in his droppings, is necessarily confined to a small area, hence dirt pens are areas of concentrated infection. Naturally, therefore, the mortality of animals due to parasitic worms, particularly to nematodes not requiring an intermediate host, will be high. In order to reduce this mortality I suggest that, where practicable, at intervals of ten to thirty days, especially during warm, moist weather, the ground of all pens be burned by fire.

It is understood, of course, that burning with a flame of this kind will disinfect only the surface of the ground, unless the flame is held in one place for some seconds or minutes.

Complaint has been made that there is a high mortality from uncinariasis among high-bred pups. The use of this flame in kennels ought to reduce this mortality practically to nothing, and I see no reason why the same general method of disinfection, modified to suit the particular conditions at hand, should not be used on the seal rookeries and fox farms of the Alaskan islands.

EIMERIA STIEDÆ (LINDEMANN, 1865), CORRECT NAME FOR TH HEPATIC COCCIDIA OF RABBITS.

By Ch. Wardell Stiles, Ph. D.,
Pathologist of Bureau of Animal Industry.

It seems to have been quite generally overlooked that Lindeman named the hepatic coccidium of rabbits fourteen years earlier tha Leuckart and thirteen years earlier than Rivolta. This results in a unfortunate change in the specific name. There must also be a chang in the generic name, owing to a recent decision of the Internation Zoological Congress.

At present the synonymy of the genus and the species stands follows:

Genus Eimeria.

1875: *Eimeria* Schneider; type, *E. falciformis* (Eimer); intestine of mice.
1878: *Psorospermium* Rivolta (not Müller, 1841, p. 487).
1878: *Cytospermium* Rivolta (at least in part).
1879: *Coccidium* Leuckart; type, *C. oviforme;* liver of rabbits.
1894: *Pfeifferia* Labbé (not Gray, 1853). Contains *Coccidium perforans.*
1896: ?*Goussia* Labbé; type, *Coccidium variabile* Thélohan.
1899: *Pfeifferella* Labbé=*Pfeifferia* Labbé renamed.
Possibly other generic names belong here.

Species Eimeria Stiedæ (Lindemann, 1865) Stiles, 1902.

1865: *Monocystis Stiedæ* Lindemann, based upon Stieda's figs. 4–5, pl. 3, Arch. path. Anat., 1865; liver of rabbit.
1878: *Psorospermium cuniculi* Rivolta.
1878: "*Psorospermium uniculi*" Rivolta (misprint).
1878: ?*Cytospermium hominis* Rivolta, based upon Eimer's two cases in man.
1879: *Coccidium oviforme* Leuckart; liver of rabbit.
1879: ?*Coccidium perforans* Leuckart; intestine of rabbit.
1879: *Gregarina ovalis* Baransky; liver, intestine, mesentery glands, and kidneys rabbit.
1893: *Coccidium cuniculi* (Rivolta, 1878) Railliet.
1893: ?*Coccidium hominis* (Rivolta, 1878) Railliet.
1896: *Pfeifferia princeps* Labbé (eimerian stage of *Coccidium perforans* and *oviforme*).
1899: ?*Pfeifferella princeps* (Labbé, 1896) Labbé (eimerian stage of *Coccidiun perforans*).
1899: *Pfeifferella princeps* var. Labbé (eimerian stage of *Coccidium oviforme*).
1902: *Eimeria Stiedæ* (Lindemann, 1865) Stiles, 1902, p. 18.

EIMERIELLA, NEW GENUS OF COCCIDIA.

By Ch. Wardell Stiles, Ph. D.,
Pathologist of Bureau of Animal Industry.

A swarming stage of a parasite of a mouse was described by Eime in 1870 as *Gregarina falciformis.* Schneider (1875) took this specie as basis for a new genus—*Eimeria.* In 1879 Leuckart proposed th genus *Coccidium* for a parasite in rabbits which he thought was gener ically distinct from *Eimeria*. Comparatively recent investigations have now demonstrated that *Eimeria* represents a nonsexual stage of animals which are congeneric with the animals of which *Coccidium* represents the sexual stage. Accordingly, the genus *Coccidium* now disappears, and all of its members should be transferred to *Eimeria*—*E. Stiedae*, *E. bigemina*, *E. gasterostei*, *E. truncata*, *E. tenella*, *E. Delagei*, *E. propria*, etc.

Several nonsexual forms, for which the sexual stages are uncertain, have been described as belonging to the genus *Eimeria*, and it develops that one species, *E. nova*, runs through a sexual stage which presents characteristics similar to the nonsexual stage. This fact has led to the recognition of *Eimeria* for *E. nova*, while *Coccidium* has been retained for the other species. Such a procedure, however, can not be adopted, as *Eimeria* (1875) is based upon a form (*E. falciformis*), which passes through the coccidium stage. Hence *Eimeriella* is here proposed as a new genus, with *Eimeriella nova* (Schneider, 1881) as type species.

NOTES ON PARASITES—58-62.

By CH. WARDELL STILES, PH. D.,
Pathologist of Bureau of Animal Industry,
AND
ALBERT HASSALL, M. R. C. V. S.,
Acting Assistant Zoologist of Bureau of Animal Industry.

58: LEVINSENIELLA, NEW NAME FOR THE TREMATODE GENUS LEVINSENIA STOSSICH, 1899 (NOT MESNIL, 1897).

In 1899 Stossich proposed the generic name *Levinsenia* for a trematode genus of the family Fasciolidæ. The genus has been used by several authors, all of whom have overlooked the fact that the name *Levinsenia* is preoccupied by Mesnil (Bull. scient. de la France et de la Belgique, Paris, v. 30, p. 93).

We have called Professor Stossich's attention to the fact that his name is a homonym and suggested that he propose a new one. In reply he has requested us to make the change. Accordingly *Levinseniella* is here proposed as substitute.

The synonymy and bibliography to date for the genus are as follows:

LEVINSENIELLA STILES & HASSALL, 1901.

1899: *Levinsenia*[a] STOSSICH, 1899, pp. 7, 9 [not Mesnil, 1897, p. 93].—LÜHE, 1899, p. 538.—IDEM, 1900, p. 508.—LOOSS, 1899, pp. 617, 620.—BRAUN, 1900, p. 6.—ODHNER, 1900, p. 13.

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[a] Bibliographic references cited in this article by date may be found in full in any journal which gives the helminthological literature, for instance, the Zoologischer Anzeiger. They will also appear in full in the Index-Catalogue of Medical and Veterinary Zoology, now being prepared for press, in the Zoological Laboratory of the Bureau of Animal Industry.

1901: *Levinseniella* Stiles & Hassall, in Ward, 1901, May, pp. 176, 181, 182, 18
184.—Stiles & Hassall, 1902, pp. 19–20; *Levinsenia* Stossich, renamed.

Original species of *Levinsenia: Distoma opacum* Ward; *D. brachy somum* Creplin; *D. pygmaeum; D. macrophallos.*

Type species.—*Levinseniella brachysoma*, designated by Lühe, 189 p. 538; also independently by Looss, 1899, p. 622. The former genu *Levinsenia* must probably be divided.[a]

59: HÆMATOLŒCHUS SIMILIGENUS, NEW NAME FOR THE TREMATOD H. SIMILIS LOOSS, 1899.

A curious and unfortunate case of nomenclature is presented on pag 602 of Looss's (1899) recent paper on Egyptian trematodes.

Looss has proposed a new genus, *Haematoloechus*, for several specie of distomes. One of these is a new species, *H. similis*, which h separates from *Distoma variegatum*. The name *similis* would i itself have been an unfortunate selection, because of liability of con fusion with another species in the same family, *Distoma simile*, yet i would have been valid under ordinary circumstances. Unfortunately however, Looss has named his new species both *D. simile* and *H similis* in the same paper, thus bringing into the world a stillbor homonym (*D. simile* Looss, 1899, not Sonsino, 1890). As a substi tute for Looss's name we here propose *Haematoloechus similigenus.*

The synonymy and bibliography of the species are as follows:

HÆMATOLŒCHUS SIMILIGENUS.

1899: *Distomum simile* Looss, 1899, p. 602, not Sonsino, 1890.
1899: *Hæmatolœchus similis* (Looss, 1899) Looss, 1899, pp. 601, 602.—Stiles, 1901 p. 178.
1902: *Hæmatolœchus similigenus* Stiles & Hassall, 1902, p. 20, new name fo *H. similis.*

Type host and type locality not determined.

60: BOTHRIOCEPHALINÆ, PTYCHOBOTHRIINÆ, AND MESOGONINÆ FRO A NOMENCLATURAL STANDPOINT.

Lühe (1899) has recently placed helminthologists under obligation to himself through his work on the family Bothriocephalidæ and othe parasites. Unfortunately, however, we find it necessary to differ wit him in several nomenclatural questions. Some of these are discusse in a recent paper by Stiles, and we here direct attention to three othe cases.

Lühe (1899) and Braun (1900) have adopted the family names "Both riocephaliden" and "Bothriocephalidæ." By so doing they, of cours accept *Bothriocephalus* as type genus of the family. Lühe, howeve proposes the name Ptychobothriinæ for the subfamily to which the type genus *Bothriocephalus* belongs, and Braun follows him in this error. The name of the typical subfamily should, of course, correspond to the name of the family and of the type genus. Bothriocephalinæ, which was a name in good standing at the time Lühe proposed Ptychobothriinæ, should therefore be retained.

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[a] Ward (1901, pp. 175–185) has proposed *Microphallus* with *Dist. opacum* as typ and Jägerskiöld (1901, Dec., p. 982) has recently used *Spelotrema* with *Dist. py mæum* as type.

Ariola (1900) has erred in naming this subfamily Mesogoninæ; this name would be based upon a genus *Mesogonus*, which does not exist in this subfamily. *Mesogonimus* Monticelli is a trematode genus, the correct name of which is *Clinostomum*. Ariola's nomenclature can not, of course, be accepted, as it is contrary to the code.

Our Bureau of Animal Industry catalogue contains the following references to the names in question:

SUBFAMILY BOTHRIOCEPHALINÆ.

1891: *Bothriocephalinæ* Monticelli & Crety, 1891, p. 390.—Monticelli, 1892, p. 107.—Gamble, 1896, p. 91.—Stiles, 1896, pp. 23, 25.—Idem, 1898, p. 85.—Perrier, 1897, p. 1847.—Stiles & Hassall, 1899, pp. 100, 167.—Braun, 1900, p. 1659.—Ariola, 1900, pp. 378, 382.

1899: *Ptychobothriinæ* Lühe, 1899, pp. 41–46.—Idem, 1900, p. 210.—Braun, 1900, pp. 1675, 1683, 1691-1693.—Ariola, 1900, pp. 378, 398, 401.

1899: *Ptychobothriina* Lühe, 1899, p. 46 (misprint for *Ptychobothriinæ*).

1900: *Mesogoninæ* Ariola, 1900, pp. 380, 382, 388 (type genus, *Bothriocephalus*).

The synonyms in the above table are not all coequal in the sense of containing the same species in all bibliographic references. The conception of the limits of a subfamily (the genera most closely related to the type genus of the subfamily) very naturally varies with different authors. As the subfamily name is tied to a given generic name, it must, however, follow that name, no matter how the group is divided or restricted.

61: THE TYPE SPECIES OF ANCHISTROCEPHALUS.

In 1854 Diesing proposed *Polyonchobothrium* as subgenus of *Onchobothrium*. It contained only one species, *Tetrabothrium polypteri*, which he forthwith renamed *Onchobothrium* (*Polyonchobothrium*) *septicolle*. Accordingly, *polypteri* is unquestionably the type of *Polyonchobothrium*.

In 1890 Monticelli proposed the genus *Anchistrocephalus* to contain *Bothriocephalus microcephalus* and *Tetrabothrium polypteri*, although he knew that *Polyonchobothrium* was based upon *polypteri*.

Lühe, in 1899, designated *B. microcephalus* as type of *Anchistrocephalus* (which he changed to *Ancistrocephalus*), evidently on the ground that this species is better known than *polypteri*. He rejected *Polyonchobothrium*.

Braun follows Lühe, but explains that if *polypteri* and *microcephalus* prove to be generically related, *Anchistrocephalus* will fall as synonym of *Polyonchobothrium*.

With reference to the type species, we find it necessary to take issue with our colleagues. This case is fully covered by the B. A. Code and by precedent, and neither Lühe nor Braun has shown wherein the B. A. Code is unjust. Further, Braun has followed the ruling of the B. A. Code in other instances in the same paper. His reason for making an exception in this case is not clear, and to our minds no exception can be allowed.

Monticelli's *Anchistrocephalus* (proposed without the designation of a type) contains the type species of an earlier genus. His proposal of this name was therefore a deliberate substitution of a newer for an older name, and the older name was known to him and cited by him. *Anchistrocephalus* therefore takes the same type as *Polyonchobothrium* (namely, *polypteri*), and Lühe's designation of *microcephalus* as type must be rejected on the ground that Monticelli included a type in his renamed genus.

Lühe mentions the fact that little is known concerning *P. polypteri.* This is unfortunate, but does not alter the case.

The following references to the generic names in question are taken from our Bureau of Animal Industry catalogue:

1854: *Onchobothrium* (*Polyonchobothrium*) DIESING, 1854, p. 33.
1863: *Polyonchobothrium* (Diesing) DIESING, 1863, pp. 215, 262–263.
1890: *Anchistrocephalus* MONTICELLI, 1890, pp. 202, 208.—BRAUN, 1900, pp. 1657, 1674.
1899: "*Ancistrocephalus* Monticelli," of LÜHE, 1899, p. 37.—BRAUN, 1900, pp. 1657, 1683, 1694–1695.

62: TRICUSPIDARIA OR TRIÆNOPHORUS?

In 1793 Rudolphi proposed the cestode genus *Tricuspidaria* with *Tr. nodulosa* as type. In suggesting the name he says: "Omnibus hisce commotus proprio genera *Triaenophorus* vel *Tricuspidaria* eum enumerari mallem, num recte, penes Helminthologos sit judicum."

Of the two names used, he distinctly selects *Tricuspidaria* in connection with his diagnosis, and with this name alone does he combine the specific name *nodulosa.* In his next two articles (1801–1803, 1808–1810) he retains *Tricuspidaria*, with full knowledge of the fact that this name was also used (1794) for a genus of plants. Lamarck also retains *Tricuspidaria* in 1816. Despite the fact that, as the first reviser, Rudolphi had thus established beyond doubt the right of *Tricuspidaria* over *Triaenophorus*, he himself changed in 1819 to *Triaenophorus.* Since Rudolphi's time some authors have used one name, some the other. Lühe in his revision selected *Triaenophorus*, and Braun (1900) has followed Lühe, explaining that his reason for doing so is the page-precedence of *Triaenophorus* in 1793. In this ruling our German colleagues have followed the Code of the German Zoological Society, which differs from the principle ("first reviser") usually adopted. They have taken sides with some of the best-informed nomenclaturists in the world, hence they are in good company.

This principle of "page precedence" is an excellent one when all other things are equal, but when admitted as of more importance than other factors we must respectfully differ with our colleagues and take our position with those nomenclaturists who admit the principle of the "first reviser."

It is not clear to us why Lühe and Braun have selected the rule of "page precedence" to cover this particular case, yet have not carried out this rule consistently in reference to all the genera treated in the same papers. Thus, if "page precedence" is appealed to in order to establish *Triaenophorus* over *Tricuspidaria*, consistency calls for the acceptance, as type of every genus, the first species mentioned in connection with that genus. Neither Lühe nor Braun consistently carries out this plan; hence "page precedence" must be construed as being a convenience with them rather than a principle. The "first reviser," however, is a principle, not a convenience, which we follow; hence we must reject *Triaenophorus* and accept *Tricuspidaria*.

According to our Bureau of Animal Industry catalogue, the names in question occur as follows:

Subfamily Tricuspidariinæ, new name.

1889: *Triænophoridæ* Lönnberg, 1889a, pp. 40–42.

1899: *Triænophorinæ* Lühe, 1899a, pp. 35–41, 55.—Idem, 1899b, p. 703.—Idem, 1900a, p. 99.—Idem, 1900b, p. 210.—Ariola, 1900, p. 378.

1902: *Tricuspidariinæ* Stiles & Hassall, 1902, p. 23.

Genus Tricuspidaria Rudolphi, 1793.

1793: *Triænophorus* vel *Tricuspidaria* Rudolphi, 1793, p. 44.

1793: *Tricuspidaria* Rudolphi, 1793, pp. 43–44; type and only species, *Tænia nodulosa* = *Tricuspidaria nodulosa*.—Idem, 1802, pp. 99–102.—Idem, 1809, pp. 7, 25–26, 32, 42, pl. 9, fig. 3.—Idem, 1810, pp. 32–37.—Lamarck, 1816, p. 169.—Olfers, 1816, pp. 38–39.—Cuvier (1817, p. 45).[a]—Tschudi, 1837, p. 24.—Cobbold, 1859, pp. 115–116.—Idem, 1859, pp. 202–203.—Knoch, 1862, pp. 8, 28, 37.—Leuckart (Hoyle, trans.), 1886, p. 388.—Monticelli, 1892, p. 108.—Gamble, 1896, p. 91.

1793: *Triænophorus* Rudolphi, 1793, p. 44.—[See also Rudolphi, 1809, p. 25, as syn. of *Tricuspidaria*].—Idem, 1819, pp. 135, 467–468, 598.—Bremser, 1824, p. 138.—L'Herminier, 1826, p. 11.—de Blainville (1828, p. 596).—Creplin, 1829, pp. 79–80.—Idem (1839, p. 295).—Mehlis, 1831, pp. 190–191.—Burmeister, 1837, p. 526.—Siebold, 1837, p. 201.—Fischer de Waldheim, 1840, p. 160.—Dujardin, 1845, pp. 625–626.—Wallenstedt, 1847, p. 6.—Diesing, 1850, pp. 480, 604–605.—Idem, 1863, pp. 214, 246–249.—Baird, 1853, pp. 93–94.—Goldberg, 1855, p. 127.—Molin, 1858a, p. 134.—Idem, 1858b, p. 292.—Idem (1861, p. 236).—Carus, 1863, p. 482.—Leuckart, 1863, pp. 162, 415, 421.—Idem, 1879, p. 74.—Leuckart, Hoyle, 1886, pp. 56, 275, 302, 309, 328, 375, 377, 675, 680, 682, 715.—Willemoes-Suhm, 1869, pp. 94–96.—Kahane, 1880, p. 251.—Braun, 1883, pp. 81, 102, 104.—Idem, 1895, pp. 168, 174.—Zschokke, 1884, p. 160.—Lönnberg, 1889a, pp. 40–42.—Zernecke, 1895, pp. 7, 17, 18, 19, 29, 35, 40, 50, 61, 62, 63, figs. 43, 44, 45, 68, 71.—Gamble, 1896, p. 91.—Bettendorf (1897, p. 327).—Lühe, 1897, pp. 743, 744.—Idem, 1899a, pp. 33, 34, 35, 37–38, 55.—Idem, 1899b, p. 703.—Idem, 1900, pp. 54, 56, 58, 96, 98, 99, 107–108.—Ariola, 1900, pp. 378, 379.—Saint-Remy, 1900, p. 293.—Wolffhügel, 1900, p. 133.—Vaullegeard, 1901, p. 109.

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[a] Where dates are inclosed in parentheses, the reference has been taken from the catalogue but has not been reverified.

1881: *Trioenophorus* of Mégnin, 1881, pp. 419–426 (misprint for *Trixnophorus*).

Species Tricuspidaria nodulosa (Pallas) Rudolphi.

1793: *Tricuspidaria nodulosa* (Pallas) Rudolphi, 1793, p. 44.—Idem, 1802, pp. 99–102.—Idem, 1810, pp. x, 32–37, 238, pl. 9 [1809], figs. 6–11.—[See also Rudolphi, 1819, p. 135, as syn. of *Trixnophorus nodulosus*].—Lamarck, 1816, p. 169.—Olfers, 1816, pp. 30, 38–39.—van Beneden, 1850, pp. 164–168, pl. 22, figs. 1–5.—Küchenmeister, 1855, p. 30.—Cobbold, 1859a, pp. 115–116, 1 fig.—Idem, 1859b, pp. 202–203, 1 fig.—Idem, 1879, p. 470.—Knoch, 1862, p. 19.—Mégnin, 1881a, pp. 419–426, pl. 25.—Idem, 1881b, pp. 924–925.—Ariola, 1900, p. 460.

1819: *Trixnophorus nodulosus* (Pallas) Rudolphi, 1819, pp. 135, 467–468, 598.—Bremser, 1824a, p. 9, pl. 12, figs. 4–16.—Idem, 1824b, p. 138.—De Blainville (1828, p. 596).—Burmeister, 1837, p. 526.—Creplin (1839, p. 295).—Fischer de Waldheim, 1840, p. 160.—Dujardin, 1845, pp. 625–626.—Diesing, 1850, pp. 604–605.—Idem, 1863, pp. 247, 249.—Baird, 1853, pp. 93–94.—Siebold, 1854, pp. 36, 41, 42, 43, 70–71.—Thomson, 1855, p. 190.—Molin, 1858a, p. 134.—Idem, 1858b, p. 292.—Idem (1861, p. 236).—Polonio (1860, p. 227).—Knoch (1862, p. 32).—Carus, 1863, p. 482.—Leuckart, 1863, p. 415.—Willemoes-Suhm, 1869, pp. 95–96, pl. 10, figs. 2–4.—Kahane, 1880, pp. (192, 197).—Mégnin, 1881, pp. 924–926.—Braun, 1883, p. 82.—Zschokke, 1884, pp. 158, 163.—Schmidt, 1888, pp. 179–186.—Lönnberg, 1889a, pp. 40–41, fig. 20.—Stossich, 1890a, p. 52.—Idem, 1890b, p. 135.—Idem, 1900, p. 6.—Francaviglia, 1892, p. 32.—Kowalewski, 1894a, p. 4.—Idem, 1894b, p. 223.—Fuhrmann, 1895, p. 220.—Zernecke, 1895, p. 6.—Gamble, 1896, pp. 84, 85.—Lühe, 1897, pp. 742, 746.—Idem, 1899a, pp. 31, 32, 33, 34, 38, 41.—Idem, 1899b, pp. 703, 709, 710, 712–714, 717.—Idem, 1900, pp. 47, 50, 52, 53, 54, 55, 56, 57, 65, 66, 67, 68, 69, 72, 73, 76, 79, 85, 86, 87, 90, 91, 95, 96, 98, 108, pl. 4, fig. 2; pl. 7, figs. 23, 24, 28.—Mühling, 1898, p. 35.—Saint-Remy, 1900, p. 296.

1881: *Trixnophorus nodulosus* of Mégnin, 1881, pp. 419–426, pl. 25.

TWO TREMATODES (MONOSTOMULUM LENTIS AND AGAMODISTOMUM OPHTHALMOBIUM) PARASITIC IN THE HUMAN EYE.

By Ch. Wardell Stiles, Ph. D.,

Pathologist of Bureau of Animal Industry.

[Plate III, figures 2–5.]

Two trematodes (*Monostomulum lentis* and *Agamodistomum ophthalmobium*) have been reported for the human eye. These worms are referred to in many medical, veterinary, and zoological works, and one might be led to assume that they were of some importance. As a matter of fact, while they are of some historic interest, it must be admitted that they are more or less problematic to the zoologist; to the medical profession they must be viewed as medical curiosities rather than organisms of any practical importance.

During certain recent studies I have been obliged to consult a number of books in which these helminths are mentioned, and, noticing the various views concerning them, it has appeared to me advisable to bring together in English our entire knowledge concerning the parasites in question. The bibliographic references here cited are taken from the card catalogue of the Zoological Laboratory of the Bureau of Animal Industry, and may be considered the most complete bibliography and synonymy of these two worms as yet published. So far as I am aware, the statements here made are practically a complete presentation of the various views thus far expressed regarding the two problematic parasites.

Collective Group Monostomulum[a] Brandes, 1892.

This is an artificial collective genus proposed by Brandes to receive agamic monostomes, the exact specific identity of which can not be recognized.

The Eye Monostome (Monostomulum lentis[b] (Gescheidt, 1833) Brandes, 1892, of Man.

Specific diagnosis.—*Monostomulum:* One-tenth of a line (0.3 mm.) long.

Habitat.—In crystalline lens of eye of man (*Homo sapiens*), in Odessa.

Although quite a number of references to this parasite are found in medical and zoological literature, practically nothing is known concerning it. All discussions of the worm are based directly or indirectly upon the single observation by von Nordmann (1832, p. ix), which read as follows:

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[a] Bibliography.

1892: *Monostomulum* Brandes, 1892, p. 510.

[b] Synonymy and Bibliography.

?1758: *Fasciola hepatica* Linnæus (see below, p. 28).
1832: "Monostomen" Nordmann, 1832, p. ix.
1833: *Monostoma lentis* Gescheidt, 1833, pp. 421, 445.—Eiss, 1838, p. 38.—Rayer, 1843, pp. 114, 116, 149.—Günther, 1858, p. 205.—Weinland, 1858, p. 86.—Idem, 1859, p. 280.—Cobbold, 1876, p. 211.—Vogt, 1878, p. 13.—Küchenmeister & Zürn, 1882, p. 285.—Braun, 1883, p. 59.—Davaine, 1887, p. lxxiii.—Blanchard, 1888, pp. 542–543.—Ijima, 1889, p. 122.—Mosler & Peiper, 1894, p. 185.—Dunglison, 1893, pp. 821, 1174.—Idem, 1895, pp. 821, 1174.—Wood & Fitz, 1897, p. 335.
1850: *Monostomum lentis* (Gescheidt, 1833) Diesing, 1850, p. 329.—Idem, 1858, p. 24.—Küchenmeister, 1855, pp. 180–182.—Idem, 1857, pp. 244–246.—Swart, 1862, p. 34.—Leuckart, 1863, pp. 526, 633–634.—Idem, 1889, p. 175.—Idem, 1894, pp. 446–448.—Wagner, 1876, p. 122.—Vogt, 1878, p. 10.—de Bonis, 1882, p. 180.—Davaine, 1887, pp. 820, 822.—Braun, 1893, p. 870.—Idem, 1895, p. 155.—R. Blanchard, 1895, pp. 729, 733.—Gamble, 1896, p. 63.—Huber, 1896, p. 501.—Moniez, 1896, pp. 86, 152, 153.—Kholodkovski, 1898, p. 34.—Stiles, 1898, p. 48.
1860: *Festucaria lentis* (Gescheidt, 1833) Moquin-Tandon, 1860, p. 349.—Idem, 1861, p. 375.
1864: "*Distoma ophthalmobium* Diesing, 1850," of Cobbold, 1864, pp. 191–192, in part.
1892: *Monostomulum lentis* (Gescheidt, 1833) Brandes, 1892, p. 510.—Stiles, 1901, p. 1539.
?1892: *Agamodistomum ophthalmobium* (see pp. 29–34).
?1896: *Dicrocœlium lanceatum* Stiles & Hassall (see below, pp. 28–29).

> During the continued investigations on the small animals found in the eyes, I hav had opportunity to get on the track of several new and not uninteresting facts. I regard to the human eye, two new cases have now occurred which bear out an earlie expressed conjecture regarding the probability of the more frequent occurrence o entozoa.
>
> During the month of May Professor Jüngken extracted the lenses of two elderl blind women, at which operations I was present. In the first case (*Cataracta lenticularis viridis*) I found in one of the opaque lenses a living *Filaria*, 5½ lines long, i the act of ecdysis, while in the other lens no foreign body was to be discovered.
>
> The second case was more interesting to me and represented the first example o the presence of microscopic trematodes in the human eye, in that there were foun eight specimens of monostomes in the lens substance. The animalculæ, which la in the upper layers of the lens substance, were one-tenth of a line long and move although slowly, after they were placed in warm water. The examination was mad immediately after the operation. It is worthy of remark that in both cases the lense were not entirely opaque, the cataracts were in process of formation, and the len substance was still soft.
>
> There were present at the operation Doctors Jüngken, Becker, Staff Surgeons Braun Goldschmidt, R. Froriep, Berg, Isensee, the Grecian doctor Fürst Maurocordato, an some other younger medical men.
>
> Partially whitish opacities, which usually have a lancet form, extend from th periphery to the middle of the yellowish or greenish transparent lens, and not infre quently have a resemblance to foreign animal bodies, which can easily deceive th person who is less experienced.[a]

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[a] "Während der fortgesetzten Untersuchungen über die Augenthierchen habe ic Gelegenheit gehabt, mehreren neuen und nicht ganz uninteressanten Thatsache auf die Spur zu kommen. In Betreff des Menschenauges, so haben sich jetzt zwe neue Fälle ereignet, die einer früher geäusserten Vermuthung über die Wahrscheinlichkeit des öfteren Vorkommens von Binnenthieren rechtfertigen.

"Im Verlauf des Monats Mai wurde von dem Hrn. Prof. Jüngken hieselbst an zwe älteren erblindeten Frauen die Extraction der Linsen vorgenommen, wobei ic zugegen war. Im ersten Falle (*Cataracta lenticularis viridis*) fand ich in einer de verdunkelten Linsen eine lebende, in der Häutung begriffene, 5½ Lin. lange Filaria, während in der andern Linse kein fremdartiger thierischer Körper entdeckt werden konnte.

"Der zweite Fall war mir interessanter und bot das erste Beispiel vom Vorkommen mikroskopischer Saugwürmer im Menschenauge dar, indem in der Linsensubstan acht Stück *Monostomen* sich befanden. Die Thierchen lagen in den oberen Schichten der Linsensubstanz, waren $\frac{1}{10}$ Linie lang, und bewegten sich, obschon langsam, nachdem sie in warmes Wasser gelegt worden waren. Die Untersuchung geschah unmittelbar nach der Operation. Bemerkenswerth ist, dass in beiden Fällen di Linsen noch nicht völlig verdunkelt, die Cataracta im Entstehen begriffen, und di Linsensubstanz noch weich waren.

"Bei den Operationen waren zugegen die Herren DD. Jüngken, Becker, der Staabsarzt Braun, Goldschmidt, R. Froriep, Berg, Isensee, der griechische Arzt Fürs Maurocordato, und noch einige jüngere Mediciner.

"Stellenweise weissliche Verdunkelungen, die gewöhnlich eine lanzettförmig Gestalt haben, von der Peripherie zum Mittelpuncte der gelblich oder grünlich durchscheinenden Linse sich strecken, haben nicht selten eine Ähnlichkeit mit fremdartigen thierischen Körpern, welche den weniger Geübten leicht täuschen können."—*von Nordmann, 1832, p. ix.*

It may be noticed, first, that this description is scarcely detailed enough to enable the certain recognition of the parasite. If another case occurred in which monostomes were found in the lens, one would be justified in considering them identical with von Nordmann's form, chiefly on the ground that it would scarcely be possible to prove that they were different. Under these circumstances it need not be thought strange that authors have resorted to more or less speculation in order to interpret this case. It may also be noticed that while later authors have universally attributed the name *Monostoma lentis* to von Nordmann (1832), this author apparently did not use the binomial in question. It would appear, on the contrary, that Gescheidt (1833, p. 421) was the proposer of the name.

Diesing (1850, p. 329) thinks that the worms mentioned by Ammon (1843) as "*Distoma oculi humani*" may be identical with *Monostoma lentis*, an opinion more or less concurred in by Weinland (1859, p. 80), Cobbold (1876, p. 211), and others. While this view can not be designated as impossible, it should be recalled that the figures and description of "*D. oculi humani*" (see p. 29) distinctly prove the presence of two suckers; hence, if Diesing is correct, *Monostoma lentis* would have to be considered a distome [*Agamodistomum*], as Küchenmeister (1855, pp. 180–182) has already pointed out, and not "*Distoma oculi humani*," a member of the genus *Monostoma*. Against considering *Monostoma lentis* an *Agamodistomum*, the point may be advanced, as already recognized by Leuckart (1863), that Nordmann had the opportunity of examining the fresh material, and since he was an exceedingly careful observer, it would not appear unreasonable to assume that he would have discovered the ventral acetabulum had one been present. Too much weight, however, should not be attached to this argument, since it has not infrequently occurred that ventral acetabula have escaped the attention of even careful observers. Küchenmeister (1855, pp. 180–182) endeavored to settle the questions involved by a reexamination of the original specimens, but this, unfortunately, was not possible, since they could not be found. He suggests the possibility that the organism in reality represents a young *Cysticercus cellulosae*, and refers to the possibility of mistaking young specimens of *Cysticercus pisiformis*, of the rabbit, for trematodes. *Monostoma leporis* has, as a matter of fact, been shown by Railliet (1890) to be *Cysticercus pisiformis*. Later (1882, p. 285) Küchenmeister gave up this idea and he looked upon the parasite as resulting from a proliferating redia, the capsule of which might have escaped the attention of Jüngken. Leuckart (1863, pp. 526, 633–634) is inclined to doubt Küchenmeister's view of the cysticercal nature of *Monostoma lentis*. He says:[a]

> My observations on the development of this parasite [*Cysticercus cellulosæ*] are only slightly favorable to this hypothesis. Not only that the young bladder worms origi-

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[a] "Meine Beobachtungen über die Entwicklung dieses Schmarotzers sind dieser Hypothese nur wenig günstig. Nicht blos, dass die jungen Finnen anfangs eine

nally have a globular form, therefore could indeed with difficulty be mistaken fc trematode, but also the circumstance is here to be considered that Nordman worms measured only 0.3 mm. (one-tenth of a line), accordingly they w much too small, as cysticerci, to have a head primordium. As I have convin myself, the primordium of the head of *Cysticercus cellulosæ*, like *C. tæniæ mediocanella* forms when the bladder worm is about 0.8 mm. long, accordingly in animals wh are twice as large as the worms seen by von Nordmann.

This rather keen reasoning by Leuckart deserves full attention; the same time it may be recalled that Nordmann did not state that t worms were not globular; many trematodes are, in fact, nearly globul

Moquin-Tandon (1860, p. 349; 1861, p. 375) changes the name *Festucaria lentis*, and thinks the parasite might be mistaken f "*Fasciola oculis*." (See p. 29.)

R. Blanchard (1888, pp. 542–543) does not consider the presence monostomes in the human eye an impossibility; in fact, certain spec are able to live in mammals, and *Monostoma Setteni* has been report by Numan in the horse's eye, while *Monostoma constrictum* w observed by Diesing in the eye of the bream (*Abramis brama*). may, however, be observed that Blanchard and Railliet (1891) aft wards showed *Monostoma Setteni* to be a larval dipteron.

One other view advanced as to the parasite under discussion is th it may possibly be an erratic trematode, perhaps a young *Fascio hepatica* or a young *Dicrocoelium lanceatum*. Such a possibility mentioned, although not always without some reserve, by seve authors—Blanchard (1895), Moniez (1896), Stiles (1898), and others.

From the above review it will be clearly seen that *Monostoma len* is a problematic organism. Furthermore, it may be safely assum that the specimens were immature.

Nomenclature.—In order to aid in clearing up the helminthologic nomenclature, Stossich has proposed to transfer the agamic distom to the collective group *Agamodistomum*, while Brandes has propos the names *Monostomulum* and *Amphistomulum* for agamic monostom and amphistomes. It is quite clear that the form now under discussi should be transferred either to *Monostomulum* or to *Agamodistomu* and from the meager evidence at hand *Monostomulum* is to be preferre

The oldest certain specific name of this parasite is *lentis*, which available, at date of writing, for all the generic names (*Monostom Monostomulum*, *Distoma*, *Agamodistomum*) which come into conside tion, hence the valid name at present is *Monostomulum lentis*. Should afterwards be proved that this parasite is identical with *Dicrocoeli*

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kugelrunde Form haben, also wohl schwerlich mit einem Trematoden verwechs werden können, auch der Umstand ist hier zu bedenken, dass die Nordmann'sch Würmer nur 0,3 mm. ($\frac{1}{10}'''$) massen, also viel zu klein waren, um (als Cysticerc bereits einen Kopfzapfen zu trägen. Wie ich mich nachträglich überzeugt hal bildet sich die Anlage des Kopfzapfens bei dem *Cyst. cellulosæ*, ganz wie bei *C tæniæ mediocanellatæ*, wenn der Blasenkörper etwa 0,8 mm. misst, also bei Thier die mehr als doppelt so gross sind, wie die von v. Nordmann gesehenen Würmer." *Leuckart, 1863, p. 634.*

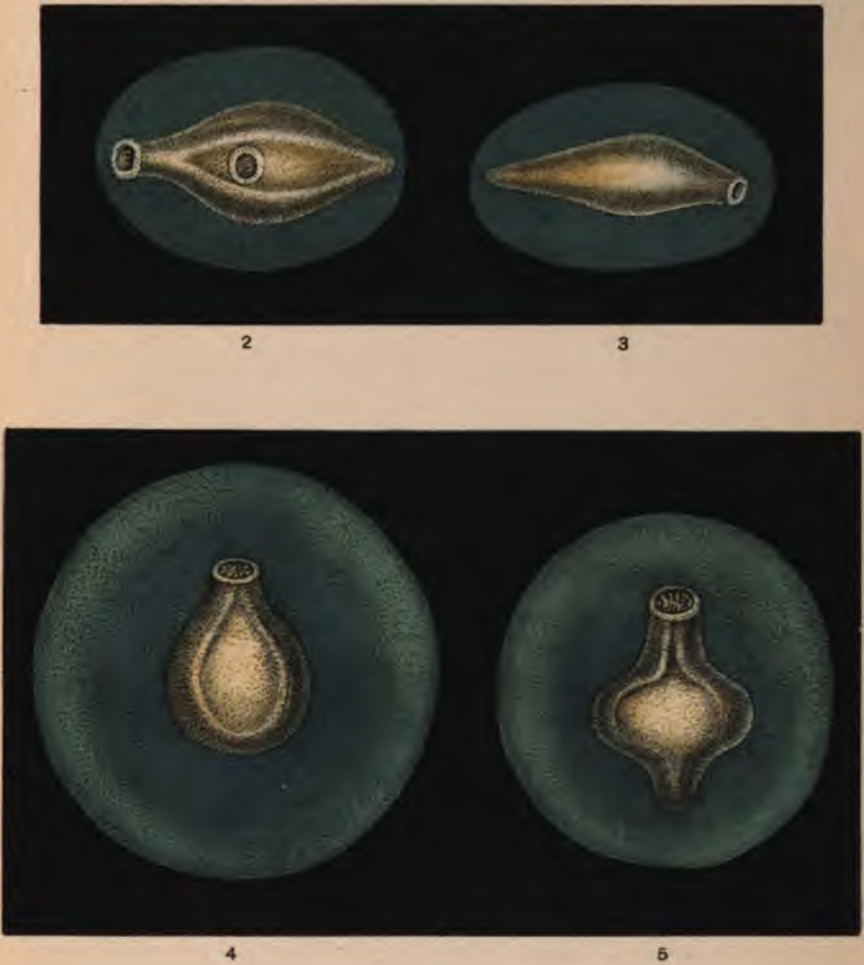
EXPLANATION OF PLATE III.

FIG. 2. Ventral view of *Agamodistomum ophthalmobium.* (After von Ammon, 183 pl. 12, fig. 24.)

FIG. 3. "Dorsal" (lateral ?) view of same. (After von Ammon, 1838, pl. 12, fig. 2

FIGS. 4, 5. Two other views of same in different stages of contraction. (Aft von Ammon, 1841, pl. 14, figs. 19, 20.)

Note that in fig. 2, published in 1838, a ventral acetabulum is distinct; in figs. 4 an 5, published in 1841, no ventral acetabulum is evident.



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DORSAL AND VENTRAL VIEWS OF AGAMODISTOMUM OPHTHALMOBIUM.

lanceatum or any other form (such a contingency seems extremely remote), the question of nomenclature must be decided upon according to the names involved.

COLLECTIVE GROUP AGAMODISTOMUM[a] STOSSICH, 1892.

This is an artificial collective genus, in which are placed all specimens of distomes which have not yet reached a stage of development permitting the recognition of their true generic position.

THE EYE DISTOME (AGAMODISTOMUM OPHTHALMOBIUM[b] (DIESING, 1850) STOSSICH, 1892), OF MAN.

[Plate III, figures 2 to 5.]

DIAGNOSIS.—*Agamodistomum:* Body ovate-lanceolate, variable, one-fourth to one-half line long, one-sixth of a line broad. Mouth terminal to subterminal, orbicular. Acetabulum one-third larger than oral sucker, subcentral, with circular aperture.

HABITAT.—Between crystalline lens and its capsule, in eye of man (*Homo sapiens*), in Dresden.

This parasite has been found but once, and all the numerous references to it in zoological and medical literature are based upon the

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[a] SYNONYMY AND BIBLIOGRAPHY.

1892: *Agamodistomum* Stossich, 1892, p. 4.—Idem, 1895, pp. 228–229.—Stiles & Hassall, 1898, pp. 82, 96.—Stiles, 1898, pp. 22, 28, 29.—Idem, 1901, p. 1539.
1892: *Distomulum* Brandes, 1892, p. 510.
1898: *Agamodistoma* Stossich, 1898, pp. 58–59.

[b] SYNONYMY AND BIBLIOGRAPHY.

1833: "Distomen" Ammon, 1833, pp. 74–75.
1833: *Distoma oculi humani* Gescheidt, 1833, pp. 434–435.—Eiss, 1838, pp. 22–23.—Ammon, 1838, p. 37, pl. 12, figs. 24–25.—Idem, 1841, p. 72, pl. 14, figs. 19–20.—Rayer, 1843, pp. 114, 116–117, 149.—Küchenmeister & Zürn, 1881, pp. 328, 329, pl. 7, fig. 13.—Bonis, 1882, p. 180.—R. Blanchard, 1888, pp. 630–631.—Braun, 1895, pp. 144–145.—Moniez, 1896, pp. 152–153.
1850: *Distomum ophthalmobium* Diesing, 1850, p. 334 [=*Distoma oculi humani* renamed].—Idem, 1858, p. 333.—Küchenmeister, 1855, pp. 222–223, pl. 4, figs. 13–15.—Idem, 1858, pp. 287–288, pl. 4, figs. 13–15.—Leuckart, 1863, pp. 610–613, fig. 205.—Idem, 1889, p. 440, fig. 191.—Idem, 1894, pp. 441–445.—Wagner, 1876, p. 121.—Davaine, 1877, pp. lxxix, 820, 822.—Linstow, 1878, p. 3.—Vogt, 1878, pp. 10, 13.—Braun, 1893, p. 870.—Blanchard, 1895, p. 733.—Schneidemühl, 1896, p. 302.—Stiles, 1898, p. 48.
1855: *Distoma ophthalmobium* (Diesing, 1850) Küchenmeister, 1855, p. 181.—Idem, 1858, p. 246.—Günther, 1858, pp. 205, 209.—Cobbold, 1860, p. 6.—Idem, 1864, pp. 191–192, fig. 41 [in part].—Idem, 1866, p. 7.—Idem, 1876, p. 211.—Idem, 1879, p. 36, fig. 5.—Moquin-Tandon, 1861, p. 373.—Küchenmeister & Zürn, 1881, pp. 328–329, pl. 8, fig. 12.—Braun, 1883, pp. 64–65.—Mosler & Peiper, 1894, p. 177.—Kholodkovski, 1898, pp. 26, 32, 34, pl. 11, fig. 28.
1859: *Dicrocœlium oculi humani* (Diesing, 1850) Weinland, 1858, p. 86.—Idem, 1859, p. 281.
1860: "*Distoma oculare* Nordmann" of Moquin-Tandon, 1860, p. 347.
1860: *Fasciola ocularis* Moquin-Tandon, 1860, p. 347 (*Distoma ophthalmobium* renamed).
1861: *Fasciola oculis* Moquin-Tandon, 1861, p. 375 (for *F. ocularis*).
1882: *Distoma ocular* de Bonis, 1882, p. 180.
1892: *Agamodistomum ophthalmobium* (Diesing, 1850) Stossich, 1892, p. 33.
?1896: *Dicrocoelium lanceatum* Stiles & Hassall, 1896, p. 158.
1896: "*Distom. okuli humani* Ammon" of Schneidemühl, 1896, p. 302.

observations made by von Ammon and Gescheidt. Ammon's origi
account of the patient reads as follows: [a]

CONGENITAL HARD AND SOFT CATARACT WITH PARTIAL OPACITY OF THE CAPSULE

In July, 1832, Professor Hasse, director of the Dresden Lying-in Institute, had
kindness to bring to my knowledge the fact that a child with cataracts on both e
had been born in the institution which is under his direction. The examination
the child which was permitted me, through the kindness of Professor Hasse, shor
after delivery, showed a gray-blue colored iris on both eyes; the eye had the pec
iarity that about a line from the inner border of the pupilla there was an irregu
circle formed of numerous small white points. This peculiar ring reminded one v
much of the first formation of the bony ring (composed of numerous white regu
osseous points) on the eye of birds. On the left eye the cataract was peculiar in
far that in its middle the usual three-pronged cleft belonging to the cataract was h
present. Around this somewhat dark cleft the lens was very cloudy. On the rig
there was a soft cataract, not to be mistaken, through the anterior very sligh
opaque wall of the lens capsule. Artificial dilation of the pupils, repeatedly pr
ticed, revealed nothing except the above-described condition, in spite of the m
extensive view of the opaque lens. A rolling motion [nystagmus] of the eyeb
was not present, but the motion was entirely natural; the eyeballs did not lie at
deep in the orbits. Now and then the child opened its eyelids very wide, just as if

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[a] CATARACTA CONGENITA DURA ET MOLLIS CUM PARTIALI CAPSULÆ SUFFUSIONE.

"Im Juli 1832 hatte Herr Professor Haase, Direktor des Dresdner Gebärinstitu
die Güte, mich davon in Kenntniss zu setzen, dass in der seiner Leitung untergeb
nen Anstalt ein Kind mit Staaren auf beiden Augen geboren worden sey. Die dur
die Gefälligkeit des Herrn Professor Haase mir bald nach der Geburt gestatte
wiederholte Untersuchung des Kindes zeigte eine grau-blau gefärbte Iris auf beid
Augen, welche die Eigenthümlichkeit hatten, dass ohngefähr eine Linie von de
innern Pupillarrand entfernt ein regelmässiger, aus lauter kleinen weissen Punkt
gebildeter Kreis sich befand. Dieser eigenthümliche Ring erinnerte sehr an d
erste Bildung des Knochenringes (aus lauter kleinen weissen regelmässigen Kn
chenpunkten bestehend) am Augen der Vögel. Auf dem linken Auge war die Cat
racta in so fern eigenthümlich, als sich in ihrer Mitte hier die der Cataracta du
angehörige eigenthümliche dreizackige Spaltung vorfand. Um diese etwas dunk
Spaltung war die Linse sehr getrübt. Auf dem rechten Auge war eine weic
Cataracta, durch die sehr wenig getrübt vordere Linsenkapselwand nicht zu verke
nen. Künstliche Erweiterung der Pupillen zu wiederholten Malen gemacht, lie
ausser den angeführten Bemerkungen, trotz des grössern Ueberblicks über die ve
dunkelten Linsen nichts wahrnehmen. Eine rollende Bewegung der Augäpfel w
nicht vorhanden, sondern es ging dieselbe ganz naturgemäss von Statten; d
Bulbi lagen durchaus nicht tief in den Orbitis. Dann und wann öffnete das Ki
die Augenlider sehr weit, gleichsam als wolle es von der [p. 75] vorhandenen, ab
durch die verdunkelten Linsen verdeckten Sehkraft Gebrauch machen.

"Das Kind war von der Mutter, die dasselbe ausserehelich geboren hatte, se
vernachlässigt worden, so dass es sehr bald in eine Atrophia meseraica verfiel, d
es im November 1832, tödtete. Eine genaue anatomische Untersuchung der a
den Orbitis genommenen Auge zeigte Folgendes:

"Rechtes Auge. Die Form des Bulbus war normal, eben so Farbe und Consiste
der Sclerotica und Cornea. Der Glaskörper zeigte nichts Krankhaftes; die Netzha
war ziemlich dick, ohne Foramen centrale, wohl aber mit starker Centralfalte ver
hen, die nach oben eine eigenthümliche Querfalte hatte, so dass sich hier die Gest
eines Kreuzes bildete. Etwas gelblich war die Netzhautfalte gefärbt, jedoch kon
der gelbe Fleck bestimmt nicht unterschieden werden. In Spiritus vini gele

wanted to make use of the power of sight which was present but concealed by the opaque lenses.

The child, which was illegitimate, was very much neglected by its mother, so that it soon fell into an atrophia meseraica, which killed it in November, 1832. A detailed anatomical examination of the excised eyes showed the following:

Right eye.—The form of the bulbus was normal, as were also the color and consistency of the sclerotica and the cornea. The crystalline lens showed no disease; the retina was quite thick, without foramen centrale, but provided, however, with a thick central fold, which had a peculiar transverse fold near the top, so that the figure of a cross was here formed. The retinal fold was colored somewhat yellowish; still the yellow spot could not be clearly distinguished. Placed in spirits of wine the retina appeared still thicker; the macula badia on the choroidea was present, but not colored very dark, and the pigment in the background of the choroidea around the entrance of the optic nerve was colored very dark. The lens and lens capsule, when examined under a hand lens, showed here and there on the anterior surface of the capsule some clouded places; through the capsule were seen large opaque portions of the lens, especially in the middle point; on the lateral portions the substance of the lens was normal in hardness and transparency; here the capsule was light and clear. Dr. Gescheidt, who examined the lens substance under the microscope for the entozoa [see above, p. 25, *Monostomulum lentis*], discovered by Dr. von Nordmann in Odessa in opaque human lenses, found four distomes, of the presence of which I also convinced myself on autopsy. Dr. Gescheidt did not risk a determination of the species, because of the newness of the examination. The lens of the left eye was also opaque, while the lens capsule of the same did not at first show any opacities; later, however, after it had lain twenty-four hours in water, it became somewhat softer, and it clouded; the middle of the lens substance, which exhibited the normal cleavage and which was transparent and normal on the borders, had a peculiar triangular nucleus, which moved here and there in the lens substance, was opaque and almost horn-like, and approached the calcareous-like concretions as to color and density. On the whole, the lens of the left eye was smaller than that of the right eye. The other parts of the bulbus had the same formation [Beschaffenheit] as those of the right eye.

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erschien die Netzhaut noch dicker; die Macula badia auf der Choroidea war vorhanden, jedoch nicht sehr dunkel gefärbt, und überhaupt war das Pigment im Hintergrunde der Choroidea um den Eintritt des Sehnerven herum nichts weniger als sehr dunkel gefärbt. Die Linse sammt Linsenkapsel unter der Lupe untersucht, zeigte an der vordern Fläche der letztern hier und dort einige trübe Stellen; durch die Linsenkapsel hindurch sah man grosse Theile der Linse, vorzüglich im Mittelpunkt, undurchsichtig; an den Seitentheilen war die Linsensubstanz in Betreff der Härte und Durchsichtigkeit normal; hier war auch die Kapsel hell und klar. Herr Dr. Gescheidt, welcher die Linsensubstanz, Betreff der von Dr. v. Nordmann in Odessa, in verdunkelten menschlichen Linsen entdeckten Entozoen unter dem Mikroskope untersuchte, fand vier [p. 76] Distomen, von deren Gegenwart ich mich durch Autopsie ebenfalls überzeugte. Die Species zu bestimmen, wagte Herr Dr. Gescheidt bei der Neuheit der Untersuchung nicht. Die Linse des linken Auges war ebenfalls verdunkelt, während die Linsenkapsel desselben anfangs keine dunkeln Stellen zeigte, später jedoch, nachdem sie vier und zwanzig Stunden im Wasser gelegen hatte, sich etwas auflockerte und verdunkelte; die Mitte der Linsensubstanz, welche jene eigenthümliche Spaltung zeigte und an den Rändern ziemlich durchsichtig und normal war, hatte einen eigenthümlichen dreieckigen Kern, der sich in der Linsensubstanz hin und her schob, undurchsichtig und fast hornartig war, und sich der kalkartigen Concretion in Betreff der Farbe und Dichtigkeit näherte. Im Ganzen war die Linse des linken Auges offenbar kleiner als die des recten Auges. Die übrigen Theile des Bulbus hatten dieselbe Beschaffenheit wie die des recten Auges."—*Ammon, 1833, pp. 74–76.*

Gescheidt[a] (1833, pp. 434–435) described the parasites in questio follows:

Distoma oculi humani.—After I had examined several human eyes in vain entozoa (among which four presented not inconsiderable organic changes), I at succeeded in finding distomes in the lens capsule of a child. The child w months old, born with lenticular cataract with partial opacity of the capsule, died of atrophia meseraica. The observations on the living child and the resul the dissection of the eye, made thirty-six hours after death, which Professor Ammon conducted in my presence, are found in the article on congenital cat communicated by him in the first number of this volume [see above, pp. 30- and I have therefore to add here only the facts bearing upon the distomes.

There were four of these in number, between the lens and the lens capsule, or anterior wall of which the location of the animalculæ revealed itself to the n eye through some clouded places. The animalculæ, one-fourth to one-half long, were surrounded by an opaque, veil-like, white mass, and were seen in di ent positions. One specimen, which was free, without the veil-like surroun mass, lay between the lens and the lens capsule, appeared in extended position, suckers turned toward the under surface of the capsule wall, and it exhibited no m ments. Two others which had retracted the caudal portion, exhibited therefo form not unlike a phial, and gave slight evidences of life in that they retracted extended the caudal portion. Once one of them assumed more the form of a c with rounded arms, in that it retracted the middle portion of the body, whi stretched somewhat the head and tail ends, so that one could consider the head as the upper arm, and the tail end as the lower arm, and the contracted middle tion as the lateral arms. The fourth specimen lay stretched, but lateral, and motionless. In its stretched position the animalcula showed a lanceolate shape, breadth being to the length as 1 to 3. The coloring was white. The anterior suc one-third smaller than the ventral sucker, appeared semicircular, provided scarcely appreciably raised margins and with radiate fibers. The pharyngeal bulb short and narrow, and merged quickly into the intestinal canal, which was of ne the same breadth; the intestine branched, fork-like, somewhat anterior of the tral sucker, extended down at each side of the latter toward the tail end, and h covered by the ovaries, could not be followed farther. Of the organization of ovaries there was also nothing definite to be recognized; only in one specime believed I could note the somewhat transverse position of the cotyledons. Profe von Ammon and my friend the practicing physician, Münch, were present at examination.

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[a] "*Distoma oculi humani.*—Nachdem ich schon mehre Menschenaugen, unter de 4 mit nicht unbedeutenden organischen Veränderungen sich befanden, in Bezug Entozoen vergebens untersucht hatte, gelang es mir endlich bei einem Kinde in Linsenkapsel Distomen aufzufinden. Das Kind war fünf Monat alt, mit Catar lenticularis cum partiali capsulæ suffusione geboren und starb an Atrophia m raica. Die Beobachtungen am lebenden Kinde und die Resultate der 36 Stun nach dem Tode an den Augen angestellten Section, die Prof. v. Ammon in mei Beiseyn veranstaltete, findet man in dem von diesem im ersten Hefte dieses Bar mitgetheilten Aufsatze über die angeborne Cataract (S. 74–76), und ich habe da hier nur das die Distomen specielle Betreffende hinzu zu fügen.

"Es befanden sich dieselben, 4 Stück an der Zahl, zwischen der Linse und Lin kapsel, an deren vorderer Wand der Aufenthaltsort der Thierchen sich schon dem blosen Auge durch einige trübe Stellen zu erkennen gab. Die Thierchen, ½ Linie lang, waren mit einer undurchsichtigen, schleierartigen, weissen M umgeben und zeigten sich in verschiedenen Stellungen. Das eine Exemplar, welc mehr frei, ohne schleierartige Umgebung, zwischen der Linse und Linsenkapsel

Some years later, Ammon (1838, p. 37; 1841, p. 72) gave four illustrations of this parasite, which are here reproduced. His explanation of the figures simply states:

Fig. 24. Figure of a *Distoma oculi humani*, anterior view, and in fig. 25, a posterior view.

Figs. 19, 20. Figures of *Distoma oculi humani* from the lens capsule of a congenital cataract. (Compare Gescheidt, Die Entozoen des Auges. Zeitschrift für Ophthalmologie, v. 3 (4).)

From the above description it is clear that an exact specific or even generic determination of the parasite is impossible. That it was a distome rather than a monostome is perfectly evident from fig. 2. That it may be a young stage of one of the liver flukes which had accidentally wandered to the eye must be admitted, but whether it belongs to *Fasciola hepatica*, *Dicrocœlium lanceatum*, or *Opisthorchis felineus*—all three of which occur in Germany, is a question which can not be definitely solved. Braun (1895, p. 144) inclines to the view that it is a *Dicrocœlium lanceatum*.

How the infection took place in this young child is a mystery. If the parasites were present in the fetus, the case would appear almost, though not absolutely, isolated in helminthology; furthermore, in such an event it is difficult to understand how they lived so long. This view, which is not excluded, presupposes that the mother became infected with liver flukes, which wandered to the fetus instead of to their natural habitat. That they entered the eye directly from water used in washing seems practically excluded. Another possible supposition is that the child swallowed the cercarian stage of four distomes,

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erschien in gestreckter Lage die Saugmündungen nach der untern Fläche der Kapselwand zugekehrt und äusserte keine Bewegung. Zwei andere hatten den Schwanztheil eingezogen [p. 435], zeigten daher eine den Phiolen nicht unähnliche Gestalt, und gaben, indem sie den Schwanztheil langsam ein- und auszogen, noch schwache Lebensäusserungen zu erkennen. Einmal nahm das Eine derselben mehr die Form eines mit abgerundeten Schenkeln versehenen Kreuzes an, indem es den mittlern Körpertheil zusammenzog, während es das Kopf- und Schwanzende etwas streckte, so dass man den Kopftheil als den obern Schenkel des Kreuzes, das Schwanzende als den untern, und den zusammengezogenen mittlern Theil als die seitlichen Schenkel betrachten konnte. Das 4te Exemplar lag gestreckt, aber seitlich, und war bewegungslos. In der gestreckten Lage zeigte das Thierchen eine lanzettförmige Gestalt und verhielt sich mit seiner Breite zur Länge wie 1–3. Die Färbung war weiss. Der vordere Saugnapf, um ⅓ kleiner als der mittlere, erschien halbkreisrund mit kaum merklichen wulstigen Rändern und strahlenförmigen Fassern versehen. Der Schlundkopf war kurz und enge und ging schnell in den fast gleichweiten Darmkanal über, der sich etwas über den mittlern Saugnapf gabelförmig spaltete, zu beiden Seiten desselben nach dem Schwanzende herunter lief, und hier, von den Ovarien bedeckt, nicht weiter verfolgt werden konnte. Von der Organisation der Ovarien war ebenfalls nichts Bestimmtes wahrzunehmen; nur bei einem Individuum glaubte ich die etwas unregelmässige transverselle Lagerung der Cotyledonen bemerken zu können. Bei dieser Untersuchung war der Herr Prof. v. Ammon und mein Freund, der pract. Arzt, Münch, zugegen."—*Gescheidt, 1833, pp. 434–435.*

or possibly in a redia, as suggested by Küchenmeister & Zürn (18
either in water or in contaminated food.

Diesing (1850, p. 334) renamed this parasite binomially as *Distom*
ophthalmobium, giving it the following diagnosis:

> Body ovate-lanceolate, depressed, variable. Neck short, subcylindrical. M
> terminal, orbicular. Acetabulum one-third larger than mouth, subcentral,
> circular aperture. Length, one-fourth to one-half line; breadth, one-sixth line.

Küchenmeister (1855, pp. 222–223) endeavored to find the origi
preparations in the pathological collection of the Academy of Dresd
but was unable to do so. Cobbold's (1864) view that this parasite is id
tical with *Monostomulum lentis* has been referred to above (see p. 2

Leuckart (1863, pp. 610–613) is not inclined to assume that the pa
sites entered through the cornea or sclera, and suggests the possibil
of their representing young specimens of *Dicrocoelium lanceatum*
Fasciola hepatica—possibly specimens which wandered from
mother before the child was born, and thus caused the congeni
cataract.

Küchenmeister & Zürn (1881, pp. 328–329), in reverting to
subject, think that the slimy mass described as surrounding the pa
sites indicates the formation of a capsule. They further suggest t
the parasites arose from infection by a redia.

Nomenclature.—Systematically, helminthologists would now pl
this worm in the collective group *Agamodistomum*. The name *oc*
humani is not available as a specific name, since the combination *D*
toma oculi humani is not binomial. The correct technical name
this problematic worm is, therefore, *Agamodistomum ophthalmobiu*

SUMMARY.

Although the zoological data concerning these two worms are
from complete, they are sufficiently detailed to demand their acce
ance as actual cases of parasitism. There is no reason to assume t
these parasites are normal inhabitants of the eye. On the contrar
everything points to the view that they represent instances of abn
mal positions for parasites which normally inhabit some other part
the body, similar to the cases reported of the presence of bladd
worms (*Cysticercus cellulosae*) in the eye. Zoologically, it seems hig
probable that at least the second case (*Agamodistomum*) represe
one of the liver flukes found in man and various domesticated anima
and the cases here reviewed indicate that we may expect to find ot
similar cases in both man and the domesticated animals.

Regarding their pathogenic nature, a doubt can scarcely arise, an
comparison with similar cases of parasitism by trematodes in the e

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[a] "*Corpus* ovato lanceolatum depressum, variabile. *Collum* breve subcylindric
Os terminale orbiculare. *Acetabulum* ore ⅓ majus subcentrale apertura circul
Longit., ¼–½‴; latit., ⅙‴."

of certain fish, as reported by von Nordmann, fully supports the view that such parasites may occasionally cause diseased conditions in the eye.

Bibliography.—The general works referred to in this article may be recognized from the authors' names and dates; in case of doubt, consult the Index-Catalogue of the Surgeon General's Library, or the card catalogue of the Zoological Laboratory, Bureau of Animal Industry, which is now being prepared for press as "Index-Catalogue of Medical and Veterinary Zoology." The titles of the articles in which the original observations were published are:

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1833.—Die angeborne Cataracta in pathologisch-anatomischer, in pathogenetischer und operativer Hinsicht < Ztschr. f. d. Ophth., Dresden, v. 3 (1), pp. 70–99.

1838.—Klinische Darstellungen der Krankheiten und Bildungsfehler des menschlichen Auges der Augenlider und der Thränenwerkzeuge nach eigenen Beobachtungen und Untersuchungen. 1. Theil. viii + 69 pp., 23 pls. fol. Berlin.

1841.—Idem. 3. Theil. viii + 90 pp., 20 pls. fol. Berlin.

GESCHEIDT.

1833.—Die Entozoen des Auges < Ztschr. f. d. Ophth., Dresden, v. 3 (4), pp. 405–462.

VON NORDMANN, ALEXANDER.

1832.—Mikrographische Beiträge zur Naturgeschichte der wirbellosen Thiere. 2. Heft, xviii + 150 pp., 10 pls. 4°. Berlin.

A CASE OF VINEGAR EEL (ANGUILLULA ACETI) INFECTION IN THE HUMAN BLADDER.

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AND

W. ASHBY FRANKLAND, M. D.

[Plate IV, figures 6–13.]

In November, 1900, one of us was called to attend a young married woman professionally. During an examination of the urine, some minute worms were found which proved to be rhabditiform embryos. In order to exclude all possibility of accidental infection of the urine from external sources, a specimen was then taken with the catheter. In this sample numerous worms of all stages were found, and these were eventually determined as *Anguillula aceti.*

This species is the ordinary vinegar worm. It belongs to the nematodes, family Anguillulidæ, which appears to have been established by Gervais & van Beneden in 1859. The most complete diagnosis of it yet written appeared in Bastian's important essay, published in 1866, and reads as follows:

FAMILY ANGUILLULIDÆ GERVAIS & VAN BENEDEN.

FAMILY DIAGNOSIS.—*Nematoda:* "Free nematoids.—Body cylindrical, tape
more or less at either extremity. Integument transparent, striated, or plain; na
or provided with papillæ or setæ; traversed by capillary pores; shed and renewe
intervals. Caudal sucker mostly present. Glandular system well developed; o
single excretory organ in anterior part of ventral region. Lateral lines existin
cellular canals communicating with the exterior, with or without a central chan
in others replaced by distinct vessels. Median lines indistinct. Nervous syst
none. Ocelli, when present, aggregations of reddish pigment on anterior par
esophagus, with or without transparent lens-like bodies. Generative organs: Fem
composed of double symmetrical uteri and short reflexed ovarian tubes, with va
near center of body; vagina occasionally more posterior, with posterior uterine
ment and ovary undeveloped; ova few, large; male, consisting of an almost sin
seminal tube, and two equal horny spicules, either alone or with one or more ac
sory pieces."

Zoologists recognized a number of genera as belonging to
Anguillulidæ. The type genus (to which the species here conside
belongs) is characterized by Bastian as follows:

ANGUILLULA EHRENBERG (*Vibrio* MÜLLER; *Ascaris* GOEZE; *Rhabditis* DUJARDIN)

GENERIC DIAGNOSIS.—*Anguillulidæ:* "Body long, narrow and tapering at extre
ties. Caudal sucker absent. Integument thin, presenting neither transverse nor lo
tudinal markings; setæ, none (?); papillæ, none (?) [present—C. W. S.]. Pharyng
cavity very minute. Esophagus cylindrical, with rounded swelling posteriorly c
taining a simple horny valvular apparatus. Intestine sparingly covered with la
colorless granules, presenting no appearance of tessellation; distinct cells not rec
nizable. Vulva posterior to the middle of body. Uterus unsymmetrical. Ovipar
or viviparous. Spicules long, narrow, curved. Accessory piece single, posteri
somewhat fan-shaped. Ventral gland wanting. Floating gland cells abunda
Lateral canals not recognizable. Movements active."

As specific description of the worm now under consideration, B
tian gives the following characters:

ANGUILLULA ACETI.

SPECIFIC DIAGNOSIS.—*Anguillula:* "Female (size very variable); length, one-t
teenth inch; breadth, one five-hundred-and-fifty-fifth inch. External charact
Body white; much obscured by colorless granules within integument; long and n
row, tapering very much posteriorly, and terminating in a long pointed extremi
Head rounded; unarmed. Integument thin, showing no striæ. Pharyngeal cav
very minute; cup-shaped. Esophagus one-ninth of total length, having a roun
swelling at termination containing valvular apparatus. Intestine covered w
coarse, colorless granules; no sort of tessellation. Anus one-eightieth inch from p
terior extremity. Vulva somewhat posterior to middle of body. Uterus unsymm
rical. Small floating gland cells numerous in cavity of body.

"Male: Length, one twenty-first inch; breadth, one eight-hundred-and-fifti
inch. Esophagus one-seventh of total length. Anus one one-hundred-and-thir
third inch from posterior extremity. Spicules narrow, having a double curve
seven-hundred-and-fourteenth inch long. Accessory piece about one-third as l
as spicules; rather thick externally, but expanding inwards into a thinner fan-sha
portion."

EXPLANATION OF PLATE IV.

FIG. 6. Lateral view of male specimen of the vinegar eel (*Anguillula aceti*) from human bladder. Greatly enlarged. Original.

FIG. 7. Caudal portion of same species: *i*, intestine; *t*, testicle; *sp*, spicule; *a.* accessory piece. Greatly enlarged. Original.

FIG. 8. Ventral view of cloacal opening of same, showing partially extruded spicu Greatly enlarged. Original.

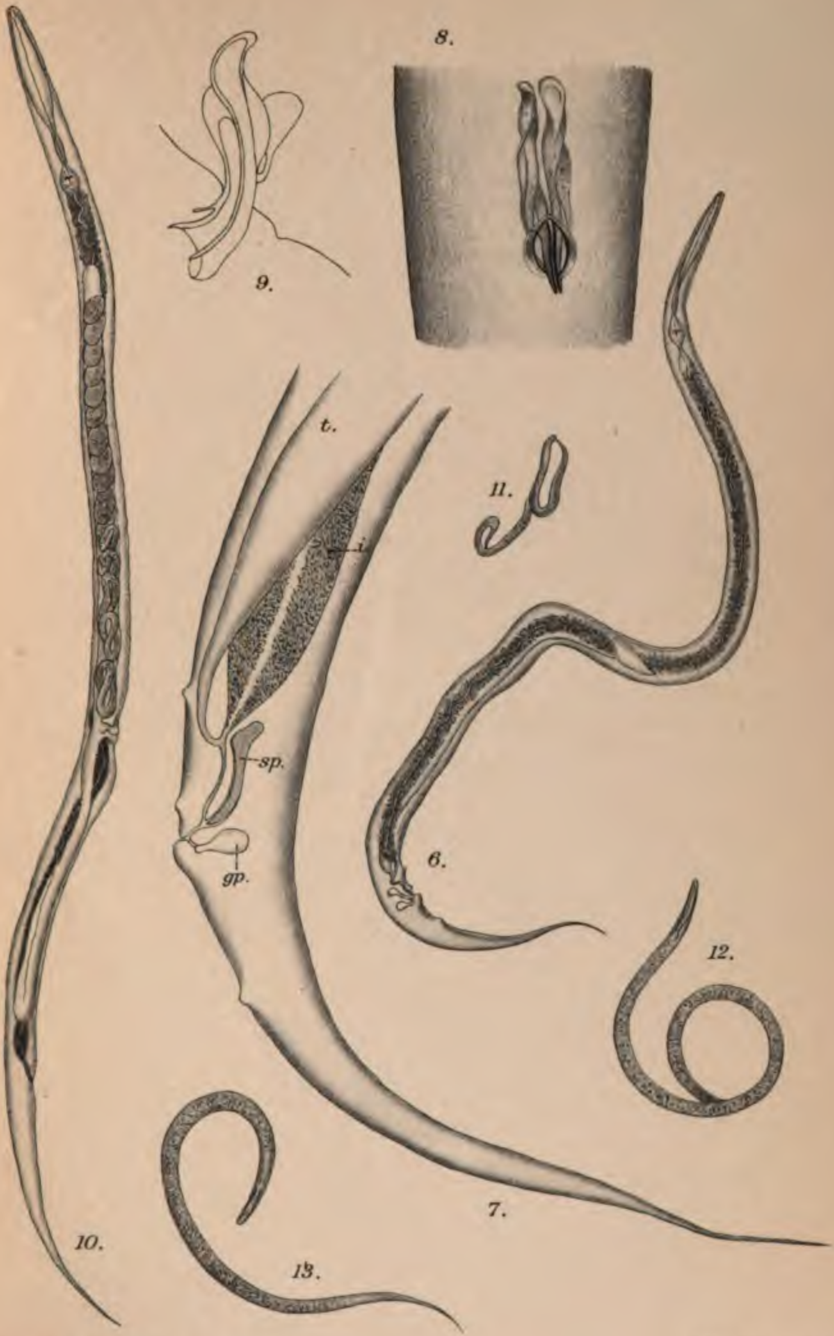
FIG. 9. Outline lateral view of partially extruded spicules. Greatly enlarg Original.

FIG. 10. Gravid female vinegar eel from the human bladder. Embryos and e are present only in the anterior horn of the uterus. Greatly enlarged. Original.

FIG. 11. Young embryos of same. Greatly enlarged. Original.

FIGS. 12, 13. Somewhat older embryos. Greatly enlarged. Original. The esop gus is evident in both specimens, and fig. 13 shows in addition a trace of the rect

PLATE IV.



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VINEGAR EEL (ANGUILLULA ACETI)

We have quoted the above, as representing the work of a standard author who has studied not only this, but also allied forms. Many of the published references to this worm are exceedingly indefinite, the characters quoted being too general and the figures too inexact to be satisfactory. Still, while the possibility that the forms reported from vinegar represent more than one species is by no means excluded, no facts at present accessible seem to compel the recognition of any species except *Anguillula aceti*.[a]

The worms observed in our case agree essentially with the characters noted by Bastian, and we have obtained also worms from vinegar here in Washington which we are unable to distinguish morphologically with certainty from the nematodes taken from the bladder of the patient.

The structure of the parasites may easily be seen from figures 6 to 13 accompanying this paper.

The males are constantly somewhat smaller than the females. No transverse striation could be discovered on the cuticle. Both sexes agree in having an elongated body of nearly uniform diameter tapering but slightly toward the mouth, while the tail is gradually attenuated from the anus caudad, its end being drawn out into a sharp point.

The intestinal tract presents the characteristics of the family, being divided into an esophagus, a stomach intestine, and a rectum. The esophagus presents three distinct divisions—(1) an anterior elongated portion which is quite thick, (2) followed by a shorter middle portion of smaller diameter, and (3) a so-called esophageal bulb provided with a tridentate armature which is characteristic of the rhabditiform worms.

The stomach intestine is a simple tubular structure extending from the posterior portion of the esophageal bulb to the anterior end of the rectum. It possesses a distinct lumen, and during life its tissue is so crowded with minute globules as to interfere materially with a careful study of details.

The rectum is short and narrow, extending from the posterior end of the stomach intestine to the anus, which is situated in the posterior portion of the body.

In the female the rectum is simple. In the male it receives the products of the testicle, thus forming a genital cloaca, while near the anus it also receives the spicules.

Males.—The males are usually about 1.35 to 1.45 mm. long by 24 to 28 μ in diameter. Taking a specimen which measured 1.04 mm. from mouth to anus as basis, the following measurements may be noted: Distance from anterior extremity to the teeth of the esophageal bulb, 132 μ; anterior portion of esophagus, 104 μ long by 12 μ in diameter; middle portion of the esophagus, 12 to 15 μ long by scarcely 8 μ in diameter; esophageal bulb, 16 to 18 μ long by 18 μ in diameter; dorsoventral diameter about middle of the worm, 24 μ; at cloaca, 20 μ; length of filiform portion of the tail, about 80 μ. The spicules are two in number, 38 μ long, similar in structure and form, with decided dorsal convexity and ventral concavity; the base is rather prominent, and measures about 10 μ dorsoventrally. An accessory chitinous piece is present, somewhat caudad of the spicules. Three distinct caudal papillæ are clearly visible. One of these is postanal and two are preanal. No copulatory bursa is present. A single testicle is present, extending anteriorly beyond the middle of the body.

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[a] We use this name in its ordinarily accepted sense, without having consulted the entire literature to see whether the name is valid under the International Code.

Some slight variation was noticed in different specimens. Thus, in a specimen 1.36 mm. long, the esophagus measured 192 μ; the spicules were 36 μ long, with a base of 8 μ; the anus was 160 μ from the tip of the tail. In another specimen, 1.44 mm. long, the esophagus measured 196 μ long; spicules, 36 μ long, with a base of 8 μ; anus, 164 μ from tip of tail. Some variation was also noticed in the position and number of the caudal papillæ; while most specimens exhibited only three as described above, several males were found with four, and in one or two instances with five. It does not seem impossible to us that the normal number is greater than three, but that one or more are overlooked even upon a very careful examination.

Females.—Females were found measuring from 1 to 2.4 mm. in length. In a female measuring 1.74 mm. in length, the diameter of the body was 40 μ, the buccal cavity 8 μ long, the esophagus 200 μ long, the anus 244 μ from the tip of the tail. In a specimen 1.6 mm. long the esophagus was 200 μ long, vulva 712 μ from the mouth, anus 240 μ from tip of tail. In a specimen 1 mm. long, in which no embryos were developed, the esophagus measured 180 μ long, the anterior portion measuring 112 μ, the middle portion 48 μ, the esophageal bulb 20 μ in length. The dorsoventral diameter of the body in the middle was 20 μ, at the anus 18 μ. The rectum was very distinct, 32 μ long; the anus 160 μ from the tip of the tail. The largest specimen found was 2.4 mm. long by 72 μ in diameter. It contained embryos measuring 222 μ long by 12 μ in diameter. The vagina was a narrow tube 21 μ long, running at right angles to the exterior, and about 1.5 μ broad.

Fig. 10 shows a gravid female. It will be noticed that the vulva is slightly caudad of the equator of the body, and that the vagina branches into a bicorned uterus. The anterior horn of the uterus extends forward nearly to the esophagus, then curves and runs caudad a short distance. The posterior horn of the uterus extends caudad nearly to the anus, then curves and runs cephalad toward the vulva. As a rule, comparatively few eggs are found at any one time in a given specimen. They may be in different stages of development, the embryo forming in the uterus. In some cases embryos are found in both uteri; in other cases they are confined to one horn of the uterus.

Biology of the parasites.—In five samples of urine taken the parasites were found in great numbers. The urine was always very acid, and in some samples which slowly became alkaline the worms died about the same time with the change in reaction of the urine. One of the samples of urine had a decided odor like that of vinegar, and in this specimen the parasites lived for two months, at the end of which time signs of life were very feeble, though the urine was still acid. Six of the worms were then removed from the urine and placed in two test tubes containing vinegar free from parasites. Their movements quickened in a few hours, and, from seeming almost dead, they became in a day or two as vigorous as ever. In one month they increased greatly by breeding, and within two months after their transfer from urine to vinegar there were enough of them in one of the tubes to make the fluid appear turbid.

Parasites in three diluted specimens of urine, one of which was allowed to remain acid, and two rendered neutral and slightly alkaline, respectively, with caustic soda, lived but a short time; those in the fluid of acid reaction living 10 days and in the others only half so long.

Apparently there was some substance in the urine and the vinegar which sustained life in these creatures. It is stated by several authors that certain albuminous matter in poorly prepared vinegar constitutes their food; and this would lead to the supposition that albumen was present in the urine.

Medical aspects of the infection.—The patient had chronic parenchymatous nephritis of a degenerative type, and the urine had frequently contained albumen. The parasites were present in the bladder for a period of thirty-three days after they were first observed, and during this time tests with heat and nitric acid failed to indicate the presence of any albumen. No symptoms traceable to the infection by the parasites occurred. There were severe headache and marked constipation during the time of their presence, but these conditions were of quite usual occurrence, and were not supposed to be caused by the worms, which disappeared from the urine without any specific treatment.

Source of infection.—Efforts to explain the occurrence of the vinegar worm in the bladder were not altogether successful. It seems scarcely reasonable, and entirely without analogy, to assume that vinegar eels upon being swallowed by a person would bore through the intestinal wall and finally reach the bladder. It seems much more reasonable to assume that they entered through the urethra. Our first thought was that the patient had used vaginal douches acidulated with vinegar, but this she denied. While she was not entirely free from hyster tendencies, no grounds are present for assuming that she introdu the parasites for the purpose of mystifying her physician.

That vaginal douches, acidulated with vinegar, are occasionally u to prevent conception is well known. A moment's consideration show that such douches might lead a physician into error in diagno since young vinegar eels, if present, might easily be mistaken other parasites. On this account a condensed key to the wo reported for the urine and the vagina may be of interest:

KEY TO CLINICAL DIAGNOSIS OF WORMS IN THE URINE AND IN THE VAGINA.

1. Eggs present ....
   Embryos present ....
   Adults present..

Eggs.

2. Eggshell thick, ellipsoid, 64 to 68 μ by 40 to 49 μ, with mosaic structure; embr not developed; indicates infection of kidney................*Dioctophyme re*
   Eggshell ovoid, 135 to 160 μ by 55 to 66 μ, without mosaic structure, usual with sharp spine; contains ciliated embryo; indicates infection of blood ve sels with trematodes (Egyptian hematuria, bilharziosis) .... *Schistosoma hæmatob*
   Eggshell thin, oblong, 50 to 54 μ by 20 to 27 μ, contains elongate wor indicates infection of rectum with pinworms; not found in urine of ma patients...*Oxyuris vermicul*

Embryos.

3. Embryo ciliated (bilharziosis) ....*Schistosoma hæmatob*
   Embryo not ciliated, elongate ....
4. Esophagus distinct, with posterior bulb armed with chitinous teeth (rhabdi form embryos) ....
   Esophagus not very distinct, no posterior bulb; same embryos also found the blood, 270 to 300 μ long.....................“*Filaria sanguinis homin*
5. Embryo 140 μ long; adults 3 to 12 mm. long in rectum......*Oxyuris vermicul*
   Adults in urine, but not in rectum ....

Larvæ and adults.

6. Elongate and flat; tapeworm larva........................*Sparganum Man*
   Body round ....
7. Body large, may attain 40 to 100 cm. in length; usually red in color.........
   Dioctophyme re
   Body less than 12 mm. long, whitish.......................................
8. Body 3 to 12 mm. long; male with single spicule; same parasite found in rectum
   Oxyuris vermicul
   Body less than 3 mm. long; male with two spicules and accessory piece.....

AN EGYPTIAN AND JAPANESE STRONGYLE (STRONGYLUS SUBTILIS) WHICH MAY POSSIBLY OCCUR IN RETURNING AMERICAN TROOPS.

By Ch. Wardell Stiles, Ph. D.,
Pathologist of Bureau of Animal Industry

[Plate V, figures 14–21.]

Among the parasites not known at present for North America, which must be considered in connection with the return of American troops from the East, should be mentioned a very small strongyle found in the stomach and upper portion of the small intestine. This nematode was first discovered in Japan by Ogata, then in Egypt, by Looss, and was referred to later by Ijima from Japan. The presence of the worm in those two countries, so widely separated geographically, would seem to indicate an extensive geographical distribution for the species.

The parasite in question is a roundworm belonging to the family Strongylidæ, and is usually placed in the genus *Strongylus*. This genus contains rather a heterogeneous assemblage of worms which will later undoubtedly be divided into several genera, and a general systematic revision of the family Strongylidæ will eventually result in certain important changes in the technical names. For the purpose of this article the generally adopted nomenclature will be followed.

Genus Strongylus.

Generic diagnosis.—Strongylidæ: Body slender; anterior extremity occasionally with alæ. Mouth small, without teeth, lips soft, often indistinct, papillæ very small. Bursa (male) entire, or excised ventrally, in some cases bi-, tri-, or multi-lobed; spicules 2, often with accessory piece. Vulva usually in caudal half of body; uterus with two horns.

Strongylus subtilis[a] Looss, 1895.

Specific diagnosis.—*Strongylus:* Very small, 4 to 7 mm. long; cuticle with exceedingly fine transverse striation; oral papillæ exceedingly small and inconspicuous; longitudinal lines well developed; lateral lines more prominent than the median. Buccal cavity short, funnel-shaped; esophagus (0.75 mm. by 7 to 30 μ) nearly one-sixth as long as body, differentiated histologically into anterior and posterior portions, and containing well-developed dorsal esophageal gland which discharges at its anterior extremity; intestine short, 13 μ in diameter. Nervous system about 0.16 mm. from anterior extremity. Excretory pore about 0.19 mm. from anterior extremity; cervical glands well developed, one extending posterior of the other and for nearly the length of the esophagus posterior of this organ.

Male.—Four to 5 mm. long, increasing in diameter from 9 μ at anterior end to 70 μ near the bursa. Testicle single, beginning near the posterior end of cervical gland;

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[a] Synonymy and Bibliography.

(1889): *Strongylus* [sp.] Ogata, 1889, No. 578. [After Ijima.]
1895: *Strongylus subtilis* Looss, 1895, pp. 161–169, pl. 1, figs. 1–8.—Idem, 1896, pp. 864–865.—Ijima, 1896, pp. 155–159.—R. Blanchard, 1895, p. 810.—Delafield & Prudden, 1897, p. 137.—Stossich, 1899, p. 79.—Stiles, 1902, pp. 41–42, figs. 14–21.

vesicula seminalis present; spicules 0.15 mm. long; accessory piece trowel-sh
single, about one-third as long as spicule; bursa bilobed, about as long as spi
somewhat broader than long, with narrow ventral connection; rays asymme
dorsomedian stem with short bilobed posterior rays; then 1 dorsolateral r
right, 2 on left; 3 lateral rays each side; finally, 1 (ventral) right and 2 left
ventral rays.

Female.—5.6 to 7 mm. long, increasing in diameter from 10 μ at head to 9
posterior third of body. Anus 97 μ from tip of sharply pointed tail. Vulva ab
beginning of posterior fifth of body, a 40 μ longitudinal opening bounded b
chitinous labia; unpaired vagina short, dividing into two proximal horns, each 0.
long; next follows on each horn a complicated valvular apparatus divided
proximal 0.2 mm. long muscular portion and a 0.1 mm. long distal portion
thinner muscular layer; uteri 0.33 to 0.4 mm. long, each containing 3 to 6
mented (in camels 7 to 8 unsegmented or partially segmented) eggs; the dista
tion serving as a receptaculum seminis; anterior genital canal extends to near pos
end of cervical glands, then turns and runs a short distance caudad; posterior g
canal runs to near anus, turns and extends to near the equator of the body.

Eggs.—Oval, 63 by 41 μ (in camels 70 by 36 μ), shell thin, contents very gra
unsegmented in uterus (in camel they may be partially segmented).

Development.—Not demonstrated; probably direct, without intermediate host;
of infection, probably drinking water or contaminated food.

Habitat.—Stomach and upper portion of small intestine of man (*Homo sapie*
Egypt and Japan; intestine of camels (*Camelus dromedarius*).

Clinical diagnosis.—Microscopic examination of feces to find
will be uncertain, unless the infection is very heavy. The me
importance of this species is not yet determined; the parasi
perhaps comparatively harmless. All cases thus far reported
diagnosed post-mortem.

Treatment.—Probably thymol.

Looss found this worm several times in both Alexandria and C
Egypt, while making microscopic examinations of the intestinal
tent of human cadavers. All of the infected bodies were of inhabi
of the flat lands. The infections were all light, and it was no
that the male parasites were less frequent than the females. I
concluded that owing to the small size of the worm, its una
mouth, and the fewness of the individuals, a pathologic rôle
hardly be attributed to it. Later (1896) Looss reported the
parasite for the camel.

An article by Ijima would seem to leave the question open
whether the worm is of any medical importance. Ogata had f
about two hundred small nematodes in the stomach of a woman
died during the "Miura plague" of 1889. These he described br
in the Tokoyo-medicinische Wochenschrift; they were identical
Looss's *Strongylus subtilis.* There is no attempt to consider
worms as the cause of the Miura epidemic, but Ijima rightly rem
that the presence of a large number of such parasites can no
lightly dismissed as harmless.

AN ADULT CESTODE (DIPLOGONOPORUS GRANDIS) OF MAN WHICH MAY POSSIBLY OCCUR IN RETURNING AMERICAN TROOPS.

By Ch. Wardell Stiles, Ph. D.,
Pathologist of Bureau of Animal Industry,

and

Louise Tayler, M. S.,
Assistant, Bureau of Animal Industry.

[Figures 22-28.]

Upon several occasions one of us has called attention to the fact that our troops, upon returning to this country from their Asiatic service, may bring back with them certain animal parasites which are not familiar to American practitioners. The object of the present paper is to call attention to an adult Asiatic tapeworm, which is very different from the American forms. Described in a few words, it belongs to the family Bothriocephalidæ, subfamily Dibothriocephalinæ, and is similar to *Dibothriocephalus latus*, the broad Russian tapeworm (usually known as *Bothriocephalus latus*), differing, however, from that form in that every segment has a double instead of a single set of genital organs.

The generic and specific diagnoses and synonymy of this parasite are as follows:

Genus Diplogonoporus[a] (Lönnberg, 1892).

Generic diagnosis.—Dibothriocephalinæ: Scolex short, with two strong, grooved suckers. Neck absent. Proglottids short and broad. In each segment two sets of genital organs, otherwise like *Dibothriocephalus*. In each segment may be recognized the following: Median field, two uterine fields, and two lateral fields. Genital pores (cirrus, vaginal, uterine) ventral in longitudinal row in uterine field; vitellogene glands and testicles in lateral and median fields. Vitellogene follicles between inner and outer longitudinal muscles. Uterus forms rosette. Parasites in man and whales.

Type species.—*Diplogonoporus balænopteræ* Lönnberg, 1892.

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[a] Synonymy and Bibliography.

1892: *Bothriocephalus* (*Diplogonoporus*) Lönnberg, 1892,[b] pp. 3, 4 [type, *Diplogonoporus balænopteræ* Lönnberg, 1892, pp. 4-16, pl. 1, figs. 1-6, 8-9].

1894: *Krabbea* Blanchard, 1894, pp. 699-702 [type, *Krabbea grandis* Blanchard, 1894, pp. 699-702].—Idem, 1895, p. 708.—Idem, 1898, pp. 350, 351.—Stiles, 1895, p. 53.—Idem, 1896a, p. 24.—Idem, 1896b, p. 205.—Jacobi, 1897, p. 288.—Kholodkovski, 1898, pp. 19, 22. [See also Ariola, 1900, pp. 377, 378, 383.—Lühe, 1899, pp. 49, 50.—Braun, 1900, pp. 1669, 1690.—Ward, 1901, p. 793.]

1897: *Diplogonoporus* (Lönnberg) Jacobi, 1897, p. 288.—Lühe, 1899, pp. 49, 50, 54.—Idem, 1900, pp. 210, 212.—Braun, 1900, pp. 1683, 1690.—Ariola, 1900, pp. 377, 378, 380, 381, 383.—Kurimoto, 1900, p. 14.—Ward, 1901, pp. 783, 793.

[b] These short bibliographic references are to articles, the full bibliographic titles of which may be found by consulting the Index-Catalogue of the Surgeon-General's Library or the card catalogue of the Zoological Laboratory of the Bureau of Animal Industry, now being prepared for press.

THE DOUBLE-PORED ASIATIC TAPEWORM DIPLOGONOPORUS GRANDIS* (BLANCH 1894) LÜHE, 1899.

SPECIFIC DIAGNOSIS.—*Diplogonoporus:* Strobila attains 10 meters in length, 25 mm. in breadth; number of segments (?). Head undescribed. Neck undescri Genital pores open in two longitudinal genital grooves. Gravid segments contra in alcohol to 0.45 mm. long, 14 to 16 mm. broad. Uterus with but few (about loops each side. Eggs brownish, rather opaque, 63 μ long, 48 to 50 μ broad.

HOST.—In the intestine of man, Japan; larva unknown, in all probability in

This parasite was originally described by Ijima and Kurimoto (1 as an undetermined species of *Bothriocepha* Blanchard (1894) created the genus *Krabbea* fo proposing the specific name *grandis;* Lühe (1 showed it to be congeneric with *Diplogonopo* *balaenopterae*, a form reported for seals.

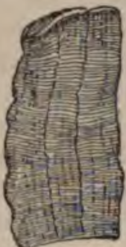

FIG. 22.—Dorsal view of a portion of the strobila of the double-pored large tapeworm (*Diplogonoporus grandis*) of man. Natural size. After Ijima & Kurimoto, 1894, fig. 1.

Our entire medical knowledge of the worm we owe to Ijima and Kurimoto. Together they described, in 1894, the first-known case of infection with this parasite. A second case was described by Kurimoto in 1900. The statements made by other authors are all based upon these two papers. The essential zoological facts presented in these articles, so far as they are necessary to the physician, are summarized in diagnoses given above. As the publications in question are accessi to only a few of the physicians in this country may be well to quote the more important origi data bearing upon the medical side of the subj

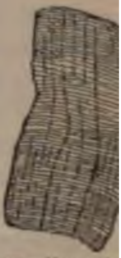

FIG. 23.—Ventral of same. After & Kurimoto, fig. 2.

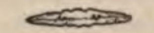

FIG. 24.—Transverse section of same. After Ijima & Kurimoto, 1894, fig. 3.

The clinical histories reported for the two kno cases are as follows:

CASE I.—*History:* "Tamaji Murazato, male, born 1865, at Taira-mura (a villag the Ariake Sea, near the town of Shimabara), in the province Hizen. In boyh healthy, but never muscular. Remained in his native village until 1879, when went to Nagasaki. Here attacked by cholera, but recovered. Up to 1892 reside several places in the neighborhood of Nagasaki and other seaside localities wi the Province Hizen, outside of which he seems to have never traveled. Calling: Amanuensis, post-office clerk, school-teacher, etc.; 1891 settled at Takashima coal mines, where he had been engaged in bookkeeping business until his death by accident in November of the following year. Some five years previous to this period he began to suffer occasional dizziness and colic. Medical help had not much effect beyond palliating the latter. Gradual anemia supervened. During October, 1892, a piece of tapeworm about 1 foot long was discharged. About this time violent colic is said to have returned. He was then taken into the hospital before mentioned and submitted to medical treatment by Mr. Nakamura." * * *

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* SYNONYMY AND BIBLIOGRAPHY.

1894: *Bothriocephalus* sp. IJIMA & KURIMOTO, 1894, pp. 371–385, pl. 18, figs. 1–12.

1894: *Krabbea grandis* BLANCHARD, 1894, pp. 699–702.—IDEM, 1895, p. 728.—I 1898, p. 350.—STILES, 1896a, p. 25.—IDEM, 1896b, p. 221.—STILES & HASS 1898, pp. 85, 137.—HUBER, 1896, pp. 561–562.—MONIEZ, 1896, pp. 255, 276.—SIMON, 1897, pp. 209, 222.—IDEM, 1900, pp. 217, 229.—KHOLODKOV 1898, p. 22, pl. 10, figs. 1–4.—KURIMOTO, 1899, p. 406. [See also KURIM 1900, p. 14.—LÜHE, 1899, p. 50.]

1899: *Diplogonoporus grandis* (Blanchard, 1894) LÜHE, 1899, p. 50.—IDEM, 190 211.—ARIOLA, 1900, pp. 385–386.—KURIMOTO, 1900, pp. 1–16, pls. 1–2.—W 1901, pp. 783, 793, figs. 1244–1245.

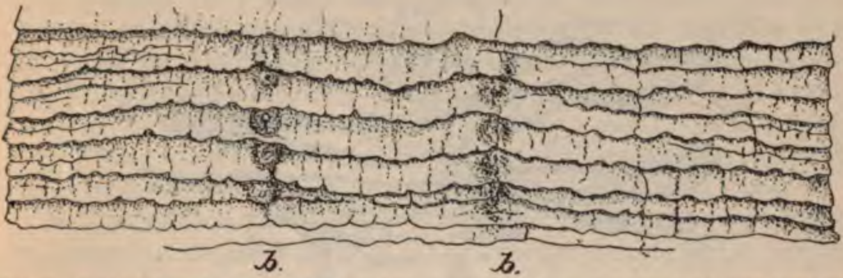

FIG. 25.—Ventral view of a portion of the strobila, showing two rows of genital pores, with partially extruded cirri. × 10. After Ijima & Kurimoto, 1894, fig. 6.

Symptoms: "Medium bodily constitution. Badly nourished; weary. Symptoms of cyanosis on face. Liable to fall into insensibility while sitting or otherwise occupied. Pulse weak and frequent, numbering 120. Palpitation somewhat accelerated. Temperature, 36.8° C. Tongue with yellowish covering. Appetite ordinary; sometimes vigorous. Gastric region swollen out and frequently giving spasmodic pain, radiating towards the back and ceasing gradually or suddenly, followed by a feeling of pressure on intestines. This feeling either remains at one place or shifts its position. The attack occurs after taking food, but also at other times. Pressing the gastric region from outside has soothing effect on the pain. Sometimes pain also in the pelvic region. Diarrhea or costiveness for many days."

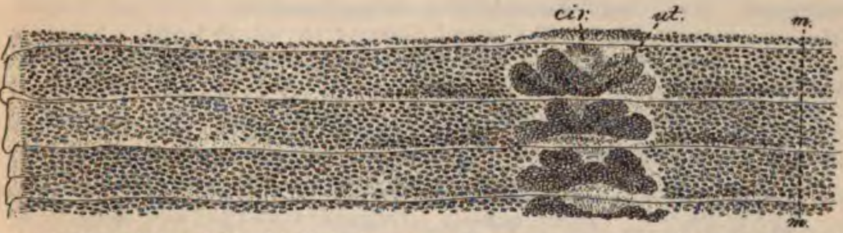

FIG. 26.—Ventral view of lateral half of a few segments of same: *m*, *m*, median line; *cir*, cirrus; *ut*, uterus; the numerous dot-like bodies on either side of the uteri represent the yolk glands. × 20. After Ijima & Kurimoto, 1894, fig. 7.

Treatment: "From above symptoms the presence of *Ancylostomum duodenale* [=*Uncinaria duodenalis*] was suspected. Microscopical examination of the feces, however, unexpectedly revealed a number of eggs, resembling very much those of *Distomum Ringeri* [=*Paragonimus Westermanii*] both in size and appearance. Irrespective of what parasite these eggs might belong to, a dose of *extr. filic. mas.* was tried, and the result was the discharge of a tapeworm measuring *10 meters* in length and at the broadest portion 25 millimeters in breadth. The broad hind end had its extreme tip shrunk, much macerated, and easily detachable. Of the other end, a portion as thin as 1.5 millimeters was found, but no head could be discovered. the following day all the complaints the man had suffered from for so many entirely disappeared."—*Ijima & Kurimoto, 1894, pp. 372–373.*

CASE II.—*History:* C. A.; 24 years; resident of Nagasaki. He went frequen the vicinity of Minamitakaki, where the first case had lived, in order to buy In 1890 changed his occupation to hauler and day laborer until 1896. He had been anywhere outside of his native district except in Minamitakaki; nat healthy, with no history of previous illness; since July, 1895, occasional pain in

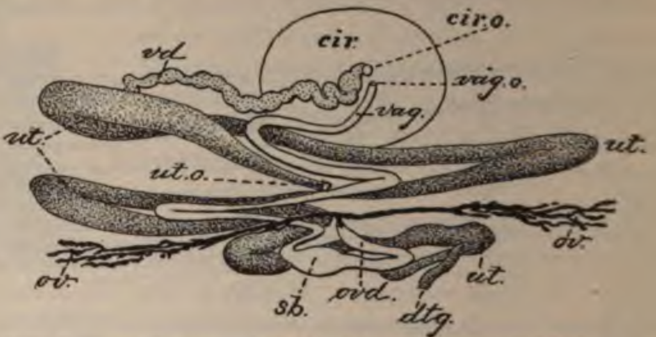

FIG. 27.—Partially diagrammatic representation of a left set of main genital ducts, as seen fr ventral side; *cir*, cirrus; *cir. o*, cirrus opening; *dtg*, yolk duct; *ov*, ovary; *ovd*, oviduct; *sb*, aculum seminis; *ut*, uterus; *ut. o.*, uterine pore; *vag*, vagina; *vag. o*, vaginal opening; deferens. X 150. After Ijima & Kurimoto, 1894, fig. 10.

men, transitory diarrhea followed by constipation; morning of January 26, taken with intense cramps and diarrhea; found something suspicious in his which he took to his physician for examination.

Symptoms: Body medium, nourishment medium. Body showed no changes, a gurgling sound from time to time in abdomen. Pieces of tapeworm were fou the stool, whereupon *extr. filic. mas.* was given. Two tapeworms without heads discharged. One of them measured 145 cm. in length and from 3.5 to 7 mm. in (the narrow end caudad). The second measured 140 cm. in length, 0.5 m width at anterior end, 8 mm. in width at broadest posterior part.—*Abstracted Kurimoto, 1900, p. 5.*

Clinically, it may be noticed that while the symptoms are va and not especially characteristic, they correspond in a general wa those noted in infections with *Dibothriocep latus*, namely, irregular appetite, with occasi pains extending from region of stomach to back; intestinal disturbance indicated by diarr colic, and constipation; anemia, as is more or common in infection with worms of this fa (absent from second case probably because of small size of the parasite); poorly nourished dition, weakness, inclination to faint.

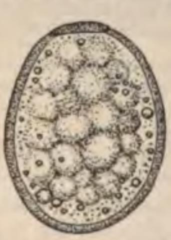

FIG. 28.—An egg taken from the uterus. X 440. After Ijima & Kurimoto, 1894, fig. 9.

Diagnosis should be very easy. If segm are found in the stools, they can be easily de mined by pressing them gently between two pieces of glass, hol them up to the light, and looking for the characters mentioned in diagnoses given above. If no segments are found, a microscopic examination of the feces will reveal numerous eggs, since this parasite belongs to a group of worms provided with a special uterine pore, through which the ova are constantly discharged. These eggs are entirely different from those of the genus *Taenia*, being provided with an operculum at one end. They may, however, be mistaken for eggs of certain other parasites. The forms which come into special consideration are *Dibothriocephalus latus* (the broad Russian tapeworm), *Fasciola hepatica* (the common liver fluke), and *Paragonimus Westermanii* (the lung fluke). It will be somewhat difficult to distinguish the eggs (63μ by 48 to 50μ) of the Asiatic tapeworm (*Diplogonoporus grandis*) from those of the broad Russian tapeworm, which measure 68 to 70μ by 44 to 45μ; the eggs of *Fasciola hepatica* are much larger, namely, 105 to 145μ by 63 to 90μ; those of *Paragonimus Westermanii* are also larger, 68 to 118μ by 48 to 60μ, and are found both in the sputum and feces.

In connection with the source of infection, suspicion points strongly to fish as the intermediate host, though the life history of the parasite has not yet been established.

In treatment, male fern alone has thus far been used, but in neither case was the head found. At present nothing indicates that the treatment for this tapeworm should necessarily differ from treatment for *Taenia*.

A LARVAL CESTODE (SPARGANUM MANSONI) OF MAN WHICH MAY POSSIBLY OCCUR IN RETURNING AMERICAN TROOPS.

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AND

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[Figures 29-36.]

In a former paper[a] we have called attention to an adult Asiatic cestode (tapeworm) which might, perhaps, be introduced into this country by the returning troops. In the present article attention is directed to a larval cestode which is reported for man in Asia, but which is as yet unknown for America. This, also, is one of the parasites which may be found in American troops who have served in the East.

The exact systematic position of the worm in question is at present somewhat uncertain. Cobbold originally placed it in the genus *Ligula;* Leuckart transferred it to *Bothriocephalus;* Ariola has recently called it *Dibothrium*, which is a synonym of *Bothriocephalus*.

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[a] **An adult cestode (*Diplogonoporus grandis*) of man in Asia, which may possibly occur in returning American troops. (See above, pp. 43–47.)**

From our present knowledge of systematic helminthology th appears to be no doubt that the parasite belongs in the family Both ocephalidæ. Of what particular natural genus it is a member purely a matter of speculation, since the genera of this family based largely upon the arrangement of the genitalia, and in the lar specimens under consideration no genital organs are as yet develop The absence of any indication of such structures in the larval sta excludes it from the genus *Ligula* as at present defined; and to plac in *Bothriocephalus*, as now defined, is to assume that the present) unrecognized adult stage will have its genital orga arranged similarly to those of *Bothriocephalus bipunctat* which lives in certain fishes. Such an assumption is pur gratuitous. To call it a *Dibothrium* is not permissible und the present rules of nomenclature.

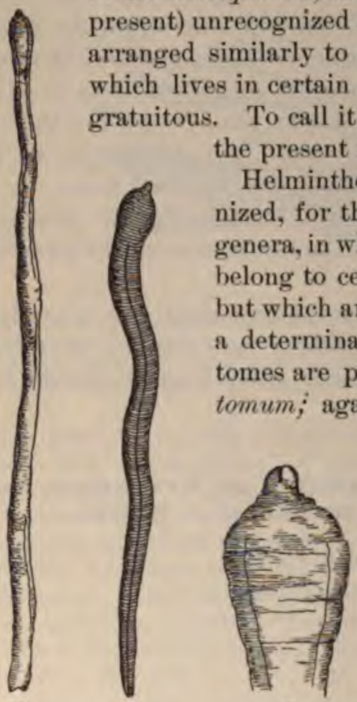

Fig. 29.—*Sparganum Mansoni*. Natural size. After Cobbold, 1883, fig. a. Fig. 30.—Another specimen of same. Natural size. After Leuckart, 1886, p. 942, fig. 402 A. Fig. 31.—Head end of same. × 5. After Leuckart, 1886, p. 950, fig. 405.

Helminthologists have from time to time rec nized, for the sake of convenience, certain agar genera, in which are collected all those forms wh belong to certain larger groups, such as famili but which are not developed to a degree permitti a determination of the genus. Thus, agamic d tomes are placed in the artificial genus *Agamod tomum;* agamic amphistomes in *Amphistomulu* etc. By such an arrangement cepted genera are relieved of t artificial and often conglomer status which would be given to th by using them as collective grou in which to place undeterminal forms.

Diesing (1854) proposed the g neric name *Sparganum* for a c lective group, of biologic rath than systematic value, to cont certain larval tapeworms whi could not be definitely determin thus corresponding to *Agamod tomum* and *Amphistomulum*. *Sparganum* has not been genera accepted by recent authors, but we believe its adoption advisable. T parasite now under discussion should be placed in this group.

Collective Group Sparganum[a] Diesing, 1854.

Generic diagnosis.—Bothriocephalidæ: Larval forms; sexual organs absent, that generic determination is impossible. An artificial collective group, with type species.

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[a] Bibliography.

1854: *Sparganum* Diesing, 1854, pp. 573–574.—Braun, 1900, p. 1676.

Species Sparganum Mansoni[a] (Cobbold, 1882).[b]

Specific diagnosis.—*Sparganum:* Length, 8 to 36 cm.; breadth, 0.1 to 12 mm.; thickness, 0.5 to 1.75 mm. Anterior end may be broader than posterior. Flat, not segmented, but with irregular transverse folds; ventral surface usually with distinct longitudinal median groove; dorsal surface may show two longitudinal grooves. Anterior margin rounded, with papilliform elevation on which is found the head. The latter somewhat compressed and more or less invaginated.

Habitat.—Subperitoneal connective tissue and body cavity of man (*Homo sapiens*) in Amoy and Japan; Sonsino reports it for the jackals (*Canis aureus*), in Egypt.

The presence of a larval cestode in man must, from a biological standpoint, be looked upon either as abnormal and more or less accidental or as a survival from savage and prehistoric times, since the normal hosts for larvæ are animals which serve as food for the hosts of the adult stages. If any given larva were dependent upon man as intermediate host the parasitic species would soon become extinct, since man does not serve as food for any animal, though, of course, occasionally eaten by insects, crabs, carnivorous fish, reptiles, birds, and mammals.

The presence of *Sparganum Mansoni* in man appears, accordingly, to be biologically abnormal and accidental. The normal host for this larva and the normal host for the adult stage are still unknown, but it may be noted with interest that Ijima & Murata (1888, p. 160) report a larval cestode resembling *Sparganum Mansoni* from an ape

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[a] Synonymy and Bibliography.

1882: *Ligula Mansoni* Cobbold in Manson, 1882 (Oct. 4), p. 617.—Cobbold, 1883, pp. 78–83, figs. a–d.—Railliet, 1886, p. 276.

1886: *Bothriocephalus liguloides* Leuckart, 1886a, pp. 862, 941–951, figs. 402–403, 405.—Idem (Hoyle, trans.), 1886b, pp. 682, 745–751, figs. 402–404.—Ijima & Murata, 1888, pp. 149–162, pl. 5 bis, figs. 1–8.—Ijima, 1889, pp. 246–256, fig. 28.—Dunglison, 1893, p. 155.—Idem, 1895, p. 155.—Idem, 1900, p. 155.—Mosler & Peiper, 1894, p. 48.—Schneidemühl, 1896, p. 292.—Stiles, 1896, p. 25.—Wood & Fitz, 1897, p. 324.

1886: *Bothriocephalus Mansoni* (Cobbold) R. Blanchard, 1888, pp. 536–538, figs. 293 a–d.—Idem, 1895, pp. 727–728.—Idem, 1900, p. 486.—Railliet, 1893, pp. 327, 328.—Braun, 1895, pp. 202–203, fig. 103.—Moniez, 1896, pp. 272–274, figs. 59 a–d.—Gamble, 1896, pp. 81, 91.—Stiles, 1896, p. 25.—Idem, 1898, p. 85.—Hassall, 1898, p. 137.—Kholodkovski, 1898, p. 22, pl. 9, figs. 20–21.

1896: "*Leguli Mansoni* Cobbold" of Huber, 1896, pp. 560–561 (misprint for *Ligula Mansoni*).

1896: "*Bothriocephalus leguloides* Leuckart" of Huber, 1896, pp. 560–561 (misprint for *B. liguloides*).

1897: "*Bothriocephalus lingulöides* Leuckart" of Simon, 1897, p. 510 (misprint for *B. liguloides*).

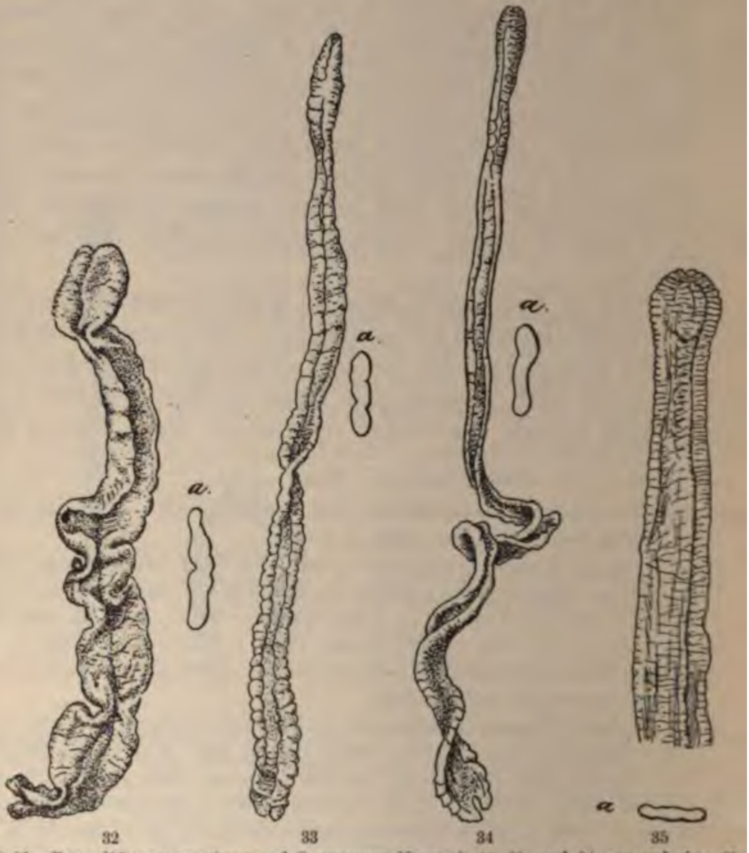
1900: *Dibothrium Mansoni* (Cobbold) Ariola, 1900, pp. 458–459, fig. 4.—Ward, 1901, pp. 783–793.

1902: *Sparganum Mansoni* (Cobbold) Stiles & Tayler, 1902, pp. 47–56, figs. 29–36.

[b] These short bibliographic references are to articles, the full bibliographic titles of which may be found by consulting the Index-Catalogue of the Surgeon-General's Library or the Index-Catalogue of Medical and Veterinary Zoology of the Zoological Laboratory of the Bureau of Animal Industry.

(*Inuus speciosus*) and a martin (*Mustelus itatsi*). It is also stril
that Sonsino (1889) reports from the jackal (*Canis aureus*) in Egyp
specimen which he considers identical with *Sparganum Mansoni* in n

Whether all of these forms can be recognized as specifically ident
is, of course, a question, for since we are not able to determine e
the genus of this larval parasite an absolute specific determinatio
naturally an impossibility. In fact, strictly speaking, we are
justified in claiming that it has been scientifically demonstrated



FIGS. 32-35.—Four different specimens of *Sparganum Mansoni:* 32, 33, and 34, natural size; 35,
represents outline of cross-section. After Ijima & Murata, 1888, pl. 5 bis, figs. 1, 3, 4, 5.

all of the worms from man, published as identical with *Spargan*
Mansoni, are in reality members of the same species. In the fi
analysis *Sparganum Mansoni* simply represents an indefinite coll
tion of both riocephalid larvæ found in man, parasites which n
belong to one or to several species.

A natural result of our incomplete zoological knowledge of the c
todes in question is that it is impossible to state with certainty how
patients became infected, hence it is impossible to suggest prophylac
measures.

Two possibilities in particular come into consideration: It is theoretically conceivable that the embryo of the parasite is swallowed with the drinking water, and that it then bores its way to various parts of the body. The possibility must also be admitted that the patients had eaten raw or rare fish, and that encysted larval parasites present therein had then wandered from the intestine to the connective tissue. Analogies of such wanderings of parasites are not entirely wanting, and it may further be noted that the cases of infection by this particular parasite thus far recorded have occurred in a part of the world where fish forms an unusually important article of diet. It would appear also, as has already been pointed out by other authors, that the parasites wander to some extent in the body of man. This is shown, for instance, by the cases where the worms escape from the urethra.

Thus far the 10 recorded cases of infection in man by *Sparganum Mansoni* may be divided as follows:

Geographically: Amoy, 1; Japan, 9.

By sex: Males, 7; females, 2; not stated, 1.

By age: 1 to 10 years, 1 case; 11 to 20 years, 3 cases; 21 to 30 years, 3 cases; 31 to 40 years, 1 case; 41 to 50 years, 1 case; not stated, 1 case. Thus, 6 out of 10 cases occurred between the ages of 11 and 30 years.

Seat of worm: Region of eye, 3 cases; escaped from urethra, 4 cases; connective tissue of abdominal region, 3 cases. [Pleural cavity, 1 case.]

Number of parasites present: Single parasite reported, 9 cases; 12 parasites reported, 1 case.

The cases in question may be tabulated as follows:

Case No.	Age and sex.	Country.	Seat of parasite.	Number of parasites.	Dimensions of parasite.	Authority.
I	34 years, male.	Amoy ..	Subp. conn. tiss., near iliac fossa and post-renal; 1 free in pleural cavity.	12	300 to 350 x 3 x 0.4 mm. 30 to 81 mm.	Manson, 1882, pp. 616–617; Cobbold, 1883, pp. 78–83.
II	28 years, male.	Japan ..	Wandered and discharged from urethra.	1	185 mm. long...	Leuckart, 1886a, pp. 941–951, figs. 402–403, 405; Leuckart, 1886b, pp. 745–751, figs. 402–404.
III	9 years, male.	....do...	From urethra.........	1	300 x 10 x 1.75 mm.	Murata, 1887, No. 181, pp. 4–10; No. 182, pp. 6–10; Ijima & Murata, 1888, pp. 150–151, fig. 1.
IV	25 years, male.	....do...	.....do..............	1	600 x 6 x 1.5 mm. 245 x 1 to 3 mm.	Murata, 1887, No. 185, pp. 4–7; Ijima & Murata, 1888; pp. 151-152, fig. 2.
V	42 years, male.	....do...	.....do..............	1	364 x 12 mm. or 105 x 6.5 mm.	Toyoda, 1888, No. 2; Ijima & Murata, 1888, pp. 153–154, fig. 3.
VI	17 years, male.	....do...	Region of eye	1	25 x 1.5 to 4 mm.	Murata, 1887, No. 181, pp. 4–10; No. 182, pp. 6–10; Ijima & Murata, 1888, p. 154.
VII	15 years, female.	....do...	.....do..............	1	120 x 3 to 6 mm.	Murata, 1887, No. 185, pp. 4–7; Ijima & Murata, 1888, pp. 154–155, figs. 4, 6, 8.
VIII	24 years, male.	....do...	Thigh	1	88 x 3.5 to 6.5 mm	Ijima & Murata, 1888, pp. 155–157, fig. 5.
IX	11 years, female.	....do...	Region of eye	1	25 x 2 mm	Ijima & Murata, 1888, p. 161.
X	?	....do...	Inguinal region	1	450 mm	Ijima & Murata, 1888, p. 157.

Clinical diagnosis.—Diagnosis will usually be made either upon op ing a swelling and finding the worm, or upon postmortem, or up seeing a portion of the worm at the opening of the urethra. Since are dealing with an immature stage, ordinary methods of diagnosis microscopic examination for ova will be useless.

Treatment.—From the position of the parasite it is clear that administration of anthelmintics is not indicated. Surgical treatm is used in superficial swellings, while in urethral cases the wor should be extracted while the patient is in a warm bath, the paras being slowly drawn out or wound out around a stick under water.

HISTORICAL REVIEW, WITH REPORT OF CASES.

The first record of this parasite was published by Manson (1882, 616–617). It was a "Case of Lymph Scrotum, associated with Fila and other Parasites." Some of the "other parasites" were those s to Cobbold, who identified them as a new species and called them *Lig Mansoni*. Dr. Manson, who was in Amoy at the time, found th helminths in a Chinaman. The latter had died of dysentery and ulc ated stricture of the esophagus, after operation for lympho-elephant scrotum. Manson described the worms as follows:

> CASE I. "A number of parasites, twelve in all, were found lying in the subperito fascia, about the iliac fossæ, and behind the kidneys. A similar parasite was fo lying free in the right pleural cavity. Some of these parasites were coiled up in l knots, and others lay extended. On being drawn from under the peritoneum t exhibited languid movements like those of the tapeworm. * * * The paras referred to as having been found in the subperitoneal areolar tissue were long, tape- animals, 12 to 14 inches long, one-eighth of an inch broad, and about one sixty-fo of an inch in thickness. They were dead white, and moved distinctly when ta out of the body. The extremities were rather thicker than the rest of the body were rounded off. A hurried glance with the microscope showed one extremit be lipped. I placed them in a mixture of serum and urine, intending to exam them more carefully in the evening of the post-mortem, but was disturbed. N morning I poured spirits of wine over them. To-day I find them so friable that I not make out the structures. There are no joints or articulations. The entire an seems stuffed with clear, globular, egg-like bodies, in many of which double and tr outline, with appearance of nucleus, can be traced. These bodies are apparently together by a loose fibrous matrix, which, on pressure, splits up longitudinall ruptures transversely. The integument is very thin. One extremity appears t provided with a narrow longitudinal slit, the other is distinctly lipped."—*Man 1882, pp. 616–617.*

An editorial footnote to this article states that Cobbold had propo the name *Ligula Mansoni* for the parasites in question.

Cobbold (1883) gave a more detailed description of the worm following year, publishing a specific diagnosis and discussing the p sible modes of infection.

The next contribution to our knowledge of this parasitè was Leuckart (1884, 1886). The original paper of 1884 is not accessible us, but in 1886 Leuckart gave an account of a case which was obser by Dr. Scheube in Kyōto. Leuckart renamed the worm *Bothriocephalus liguloides* and gave an important zoological discussion of it. He disagrees with Cobbold in reference to its possible relation to *Ligula*. He is of the opinion that the entire body of the larval parasite will not change to an adult in a final host, but that the head and adjacent portion will give rise to the strobila, while the rest of the worm will be destroyed. The medical history of the case he cites is as follows:

CASE II. "The patient was a Japanese, 28 years of age, who had been five years in prison, but was formerly for some years a groom in the island of Kiushiu, and had moved about in the west of the main island. During his residence in Kiushiu, he suffered, after a prolonged careless life, from hematuria. He became afterwards syphilitic and remained so till his imprisonment. After he had been four years in prison his left testis began to swell and became painful. At the same time a diffuse hardening of the skin set in on the upper part of the left thigh, below the inguinal region, and pains extended thence to the left hypochondrium. Afterwards the hardening and the pain decreased, and wholly disappeared after some months, so that the patient, in spite of the persisting slight enlargement of the left testis, felt absolutely healthy. In the course of a year, without apparent occasion, dysuria set in, associated with pains in the urethra and bladder. The urine itself exhibited no striking change. After the dysuria had lasted for some days the patient observed when making water the projection of a white thread-like body, which moved when touched. He recognized it as a worm, and attempted to extricate it by winding it round a bamboo rod. After he had drawn out about 18.5 cm. in this fashion the worm broke. The pain of urinating was temporarily relieved, but after a short period returned. The urine could only be expelled in drops by strong pressure, and with violent pains, which extended to the upper thigh. The urine was slightly cloudy, but on microscopic examination revealed nothing unusual except blood corpuscles. Whether further portions of the worm were expelled is not known, as the patient very soon returned from the hospital to the prison."—*Translation of Leuckart, 1886a, pp. 943–944.*

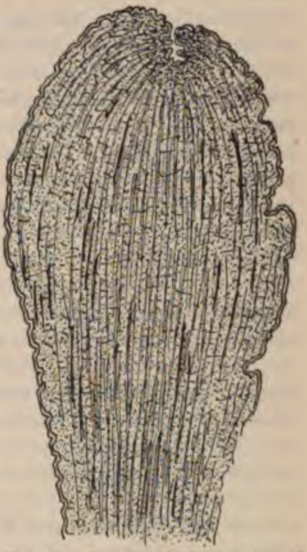


FIG. 36.—Longitudinal section of anterior end of fig. 34. × 10. After Ijima & Murata, 1888, pl. 5, fig. 6.

Ijima & Murata, in 1888, made an important contribution to this subject by publishing eight new cases of infection. Some of these had already been reported in Japanese. The clinical notes may be abstracted as follows:

CASE III. Observed by Namba, a physician in the province of Echigo. "The patient was a boy, scrofulous and of weak bodily constitution. When three years old he suffered from frequent swelling of the scrotum on the right side, consequent on inguinal hernia. This complaint ceased, but after the lapse of several years, when he was 9 years of age, he began one day (July, 1886) to experience difficulty in urination, which had to be done often, but only drop by drop. Two days passed in this way, when, while making efforts for the passage of urine, a tapeworm-like body

came out of the urethra to the length of about 10 cm. On being drawn it contra
and tore off (to what length is not stated). On the following day the patient c
to Mr. Namba, who put him in warm bath and carefully wound out the worm
still hung out of the urethral opening and showed signs of movement. The p
thus obtained measured over 20 cm. After this the urine passed unobstructe
and an inquiry made many days afterwards showed that the boy had since felt in
usual health."—*Ijima & Murata, 1888, p. 150.*

Case IV. Reported at a Kyōto Medical Society meeting by S. Saitō. "The pa
was a man (son of a farmer in Sayama Village, near Kyōto), 25 years of age
strong in body. Five years previously (1882) he is said to have suffered from vi
gonorrhœa, at one period passing blood with urine. In half a year he recove
but some time afterwards the desire for passing urine began to be frequent, s
times as much as 15 or 16 times in a day. However, it was only by great ef
that he could discharge urine. Besides, he felt now and then itching or pressing
sations at the perineum. This state continued until October 14, 1887, when, w
endeavoring for the passage of urine, a moving worm protruded itself from
urethra. Mr. Ogino, a physician of the village, carefully pulled it out until it
off, leaving a part of the body behind. The piece obtained then measured 2 fe
length, about 6 mm. at the broadest and about 1.5 mm. at the narrowest part.
two days afterwards the patient felt pain in passing urine, which moreover conta
blood. The frequent but scanty discharge of urine continued longer. When S
examined him, some time after, the urine was transparent and amber-colored, wit
precipitate or other abnormality. We do not know what has since become of the r
of the worm that was left in the urethra nor of the complaint in urination."—I
& Murata, 1888, pp. 151–154.

Case V. Observed by Mr. Toyoda in Kyōto. "The patient was a citizen of Os
42 years old. On the morning of May 8, 1884, he began to discharge blood
urine, and in the afternoon a white worm appeared from the urethra while urinat
Toyoda was immediately called for. He succeeded in pulling out the entire wo
This measured about 364 mm. in length and about 12 mm. in breadth. Put
vessel (with water?) it continued to contract and stretch and move about for ne
two hours. It was then put into glycerine for preservation. As the worm was
to Toyoda, he tried various means to identify it, but in vain."—*Ijima & Murata, 1*
p. 153.

Case VI. Communicated to Ijima & Murata by R. Satō, of Utsunomiya.
patient was a young man, 17 years of age (1883), living at Kanazawa, in the prov
of Kaga. "The affected place was the region of the inner angle of the left eye.
this place not only the eyelids but also a part of the conjunctiva around the P
semilunaris was in a state of severe inflammation. At a spot just over the Carun
lachrymalis Satō observed a whitish spot which seemed to protrude itself. This
taken hold of by a pincette and pulled out, when it proved to be the worm in q
tion."—*Ijima & Murata, 1888, p. 154.*

Case VII. Reported with Case IV at a Kyōto Medical Society meeting by S. Sa
"The patient was a girl, 15 years old, living at or near Kyōto. On March 10, 1
a vesicle-like protuberance formed itself, without any assignable cause, on the w
of the left eye, midway between the cornea and the outer angle. Three days af
a physician, Mr. Shingū, examined and found it to be about of the size of the ti
little finger, soft and white, somewhat resembling cod ovary in appearance. In
hours he observed an elongated, macaroni-like body, which, on being slowly pu
out, was found to be a worm." Its length was 120 mm.; breadth, 3 to 6 mm.—*Ij*
& Murata, 1888, p. 155.

Case VIII. Under the care of Mr. S. Nagao, an army medical officer. "
patient was a native of Toyama, in the Province of Etchiu. In the summer of
fifteenth year of age that part of the right leg just above the knee joint on the in

side swelled without any apparent reason for it. In the interior of the swelling a hard mass was to be felt. There was no pain. It was somehow treated by a local physician and disappeared in about ten days. A year after, the swelling reappeared at the same place, but again subsided in about the same length of time. From this time until his enlistment in the Nagoya garrison, the same swelling often recurred, invariably during the summer. The patient did not definitely remember if it took place every year or if there were years in which it did not occur. The enlistment was in May, 1885. In July of the same year the usual swelling appeared on the inner side of the lower one-third of the right thigh. It was observed that the swelling shifted its position up and down by itself to a small extent. It caused no trouble and soon disappeared. The next year passed without the appearance of the swelling. But in 1887, at the beginning of July, the swelling manifested itself this time at Scarpa's triangle. It did not at all interfere with the patient's general health, and dispersed in a few days. In September of the same year the swelling reappeared on the inner side of the middle of the thigh. As it gave him pinching pain, Mr. Nagao was consulted. The latter found a hard mass of the size of a fist, situated in the subdermal tissue at the above-mentioned spot. It could be shifted to a certain extent. The surrounding tissue was inflamed and swollen. Attempts were made to test if it contained anything obtainable by means of inserted syringe, but in vain. Iodine tincture was administered for about forty days. This had no desired effect; on the contrary, the swelling enlarged and the pain increased to such a degree as to make the patient incapable of performing his duties. He was then taken into the hospital. Carbolic-acid water was injected into the swollen tissue and cold wrapper applied. In five days there was indication of suppuration, and so a warm wrapper was substituted for the cold. In four days more the swelling suppurated and was cut open. Together with thin pus, the worm described below came out of the pus cavity. The latter, situated in the subcutaneous tissue, was traversed by trabeculæ of connective tissue in various directions. The wall of the cavity was at some places smooth, as if lined by serosa." * * *

"The removal of the worm, which was undoubtedly the cause of the almost annual swelling, took place just nine years after this occurred for the first time."—*Ijima & Murata, 1888, pp. 155–157.*

CASE IX. Reported by Mr. K. Takahashi to Ijima & Murata. "The patient was a girl, 11 years old, native of Ko-aiki village, in the Province of Kōzuke. In spring of last year [1887] she suffered from conjunctivitis. From January of this year the upper eyelid of the left eye began to swell and redden, with intervals of comparative repose. Even during such an interval the eyelid seemed to be somewhat thicker than usual. On March 16, during a school exercise, she felt pain in the eye so that she was compelled to return home. However, the pain soon subsided, and the next morning she was able to attend school. On 19th, a swelling was noticed on the eye, which was investigated by Mr. Hagiwara, a physician in the town of Mayebashi. According to him, the swelling was of the size of a small bean, was situated on the eye bulb, beneath the conjunctiva, showed no signs of inflammation, and could be shifted to a certain extent. On cutting the conjunctiva open, a worm protruded itself. It was then drawn out by means of a pincette, during which process the patient felt a slight pain. It seems that the worm was originally situated in the region of the fornix of the upper eyelid, but had changed its position so as to come beneath the conjunctiva bulbi."—*Ijima & Murata, 1888, p. 161.*

CASE X. Reported to Ijima & Murata by Takesaki. A worm was found by Dr. Disse in a subject in the dissecting room of their university. It was embedded in the subcutaneous connective tissue of the left inguinal region. "According to our informant, Mr. Takesaki, of the Pathological Institute, who was the eyewitness of the discovery, the worm was about one foot and a half long and tapeworm-like, but unsegmented. It was new to Disse, and Takesaki, who saw the specimens of Ijima and Murata, thought it to be the same worm."—*Ijima & Murata, 1888, p. 157.*

So far as we have learned, no new cases in man appear to have be reported since 1888, although the parasite has been mentioned in number of medical and zoological works. According to seve authors, Sonsino has reported the same worm from the jackal (*Ca aureus*). Sonsino's paper is not accessible to us. All other referen found are based upon the observations of Manson, Cobbold, Leucka and Ijima & Murata, reviewed above. The Japanese papers we a unable to read, but the more important facts contained in them app in the English paper by Ijima & Murata.

SPURIOUS PARASITISM DUE TO PARTIALLY DIGESTED BANAN

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AND

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[Figures 37-38.]

This laboratory receives numerous specimens of parasites whi physicians in various parts of the country forward for determinati Not infrequently structures of various kinds are submitted to us parasites which, in reality, a not of parasitic nature, b represent partially digest plant fibers of various kin and hair, clots, etc.

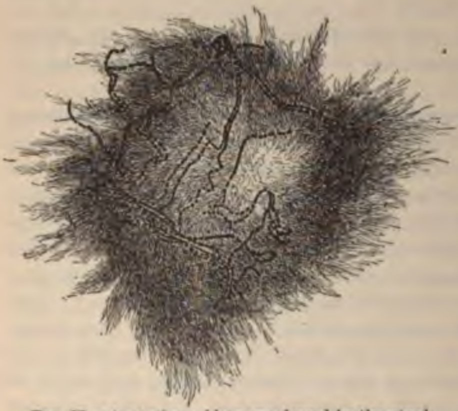

Fig. 37.—A portion of banana found in the stool. Enlarged. Original.

Quite recently two phy cians have sent specime which are identical with spe mens received upon seve former occasions. In form determinations of these part ular objects we have content ourselves by replying that t structures in question, whi bear a superficial resemblan to minute tapeworms, were cells from some plant. In the last t cases received the objects were examined more closely, and they we determined to be tissues from a banana—a determination which h been confirmed by Dr. Erwin Smith and Mr. Albert F. Woods, of t Bureau of Plant Industry.

The objects in question, when submitted, represented dark-brown black fibers, which looked as if they were segmented like a tapewor and they were found attached to a pulpy yellowish mass. Each "segment" represented a plant cell which contained a dark mass. Our correspondent, in transmitting the last specimen, writes:

"I have mailed you this day a package containing two specimens, of which I desire to learn the origin and history. While they may be very common and you may recognize them immediately, they are so foreign to the medical profession that my efforts with the microscope have not aided me in accounting for them. They are in a 40 per cent solution of formalin.

"These organisms were both passed in the stool of a child not yet two years old. They were thoroughly mixed with the feces, and I am satisfied from my knowledge of the case that they were passed from the bowel. The child is one of two in a poor family, and this little one has been very low for the past three months, but has been for some two weeks improving considerably. The worm[a] was passed on Monday, the 21st instant [October, 1901], and was preceded for twenty-four hours by high temperature and fecal discharges containing pus. The smaller segmented organisms were passed since this, and are constantly in the stools at present, always attached to the small ovoid masses of colloid material.

"The child has not eaten any class of food from which this substance could be derived, because she has been helpless in bed for some six months. Her diet has been limited to milk and malted milk, toast and butter, grape and lemon juice, water, and medicines.

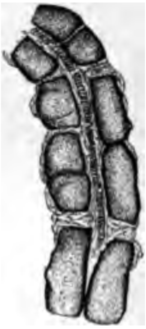

FIG. 38.—Dark banana cells showing arrangement resembling tapeworm strobilae. Enlarged. Original.

"I desire to learn, in so far as possible, the classification of these organisms, their life history and habits, that I may better account for their unusual source.

"The child has also been eating crushed banana, and in one other instance have I found foreign bodies similar to the segmented organisms."

---

[a] Determined by Dr. L. O. Howard as a lepidopterous larva, apparently *Pyralis farinalis*.

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U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF ANIMAL INDUSTRY—BULLETIN NO. 36.
D. E. SALMON, D. V. M., Chief of Bureau.

APOPLECTIFORM SEPTICEMIA IN CHICKENS.

PRELIMINARY REPORT ON A HIGHLY FATAL DISEASE CAUSED BY A NONPYOGENIC STREPTOCOCCUS.

BY

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
Washington, D. C., November 25, 1901.

SIR: I have the honor to transmit herewith an article on "Apoplectiform septicemia in chickens," being a preliminary report on a highly fatal disease caused by a nonpyogenic streptococcus, by Dr. V. A. Nörgaard, until recently Chief of the Pathological Division of this Bureau, and Dr. John R. Mohler, now acting chief of that Division. I recommend that this article be published as Bulletin No. 36 of the series of this Bureau.

Respectfully,

D. E. SALMON, *Chief of Bureau.*

Hon. JAMES WILSON,
Secretary of Agriculture.

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APOPLECTIFORM SEPTICEMIA IN CHICKENS.

PRELIMINARY REPORT ON A HIGHLY FATAL DISEASE CAUSED BY A NONPYROGENIC STREPTOCOCCUS.

INTRODUCTION.

On February 19, 1901, the dead bodies of two chickens were received at the pathological laboratory of the Bureau of Animal Industry. They came from Loudoun County, Va., and were accompanied by the following information: On a farm consisting of about 600 acres of land there were kept between 200 and 250 head of silver-barred Plymouth Rock chickens of all ages. In the course of five or six weeks about 40 birds had died from an extremely acute and invariably fatal disease, which showed no preference as to age or condition, although the fattest birds seemed to die more suddenly than the thinner ones. As a rule, a number of dead birds were found under the roosts every morning, and others were seen to drop dead while feeding in the yards. No disease had been known to exist among the chickens on this farm or in the neighborhood during the past twenty-five years, and, in the owner's opinion, the sanitary conditions were all that could be desired.

The extremely acute course and certain fatality of the disease suggested the possibility of poisoning as the cause, but a postmortem examination soon demonstrated that this was not the case.

AUTOPSY.

Silver-barred Plymouth Rock capon, 1 year old, weighing about 7 pounds; tail feathers soiled, indicating diarrhea. After picking, the bird was observed to be in a very fine condition—skin smooth and white, with the exception of extensive hemorrhagic discoloration on breast and neck, at the latter place assuming the appearance produced by the attack of a weasel, although the skin was not broken. On cutting through the skin the discolorations were observed to be due to diffuse hemorrhages in the subcutaneous and muscular tissue of the breast and neck, varying in size from a silver 25-cent piece to a silver dollar, and with irregular outlines. The mucous membranes of the head were clear, but very pale. The body cavity contained an abundance of sero-sanguinolent exudate, which, however, was not present to the same extent as was later observed in a number of experime cases. The veins of the mesentery were engorged. Of strik appearance was the immensely enlarged liver, the color of which considerably paler than normal, and the entire visible surface cove with a semiorganized plastic exudate. The gall bladder was disten with bile. The spleen and kidneys were hyperemic and swollen. intestines were congested in patches, especially the duodenum, on opening were observed to contain bloody mucus and bile-stai feces. The mucosa corresponding to the discolored areas was siderably swollen. The contents of the crop and gizzard were norr The heart was flabby and in diastole. The lungs showed circ scribed areas of congestion. On opening the cranium a profuse dural exudate was observed. The meninges were injected, and ventricles contained an abnormal amount of discolored serum.

The other bird, a silver-barred Plymouth Rock hen, 2 years old, also in good condition and showed practically the same lesions, the exception that no plastic exudate was observed in the abdom cavity.

HISTORY OF OUTBREAK.

After another consignment of four live and two dead birds had received, all of which showed similar pathological changes on mortem examination, and as the disease had not abated, it was dec to investigate the outbreak at the farm, which was visited in the be ning of April. At that time nearly 200 fowls had died, leaving than 40 alive. The owner repeated that no disease had been pr lent among his chickens for the past twenty-five years, and tha similar disease was known to have occurred anywhere in the neigh hood. No chickens had been purchased except from two adjoi farms, where all the stock were known to be healthy. The lar and fattest birds seemed to be especially susceptible and would dead without showing any preliminary symptoms, while less thr ones would linger for several days, losing the power of coordina before death.

An examination of the place showed it to consist of 600 acre farm land, mainly devoted to the raising of grain, only a few hor cows, and pigs being kept. Last fall the main barn had burned d damaging several hundred bushels of wheat, which subsequently used as feed for the fowls and pigs. The chickens had the run acres of orchard pasture, and the three houses in which they roo and bred were clean and well ventilated. Drinking water was obta usually from a stagnant pool in the barnyard, which collected drainage from the stable. The food was frequently changed, but sisted chiefly of corn meal mixed with wheat bran, wheat tailings, whole corn, and fed in connection with the above-mentioned scor wheat. After about 40 head of fowls had died, the owner decided to ascertain whether the disease in question was perpetuated in the henhouses, and therefore closed these, compelling the chickens to roost in trees, on fences, or anywhere they chose. This, however, did not cause any abatement of the disease, and dead chickens were found under the new roosts the same as before. The greatest mortality in one day amounted to 7 head, but at times there would be an apparent lull, which, however, was invariably followed by a reappearance of the disease.

During the course of the outbreak a few chickens were affected with diarrhea, while a total of 9 showed symptoms of the paralytic condition commonly known as "limber-neck." All of the latter died from the septicemia under discussion, but the writers are not in a position to assert that the two diseases are in any way related to each other.

The pullets seemed to be more susceptible than any other class of fowls, and everyone on the place (86 in number) became affected and died. Next to them the hens were most frequently affected, the disease usually assuming a more acute course than was the case with the capons and cockerels. As an instance, may be mentioned an old hen which was noticed eating at a bread crust when the family went in to dinner and was found, less than thirty minutes later, lying dead alongside the undevoured bread.

As to the period of incubation no definite conclusions could be made on account of the total absence of any prodromal symptoms, but it is to be presumed that not more than twenty-four to forty-eight hours elapsed between infection and death. This supposition was borne out by an incident which occurred a few weeks after the beginning of the outbreak. Three cockerels were purchased from a neighboring farm, and, in being unloaded, the box came open and one of the birds escaped. This occurred late on Saturday night and on the following Monday morning the cockerel was found dead. On the Sunday intervening the two other cockerels were released and on the following Wednesday one of these was found dead. This latter bird was forwarded to this laboratory, and was found upon examination to exhibit the above mentioned postmortem lesions, while the blood and all of the organs contained, in pure cultures, the characteristic microorganism which will be described below.

SYMPTOMS.

As already stated, a majority of the chickens that succumbed were found dead on the floor or below the roosts in the morning, without having shown any indication of disease the day before. A number of capons however, were observed to be ill for twelve to twenty-four hours before death. In these cases the feathers become ruffled and the bird presents a general appearance of extreme depression. The onset of the disease is so sudden that the bird is unable to segregate itself from the flock, and lies down wherever it happens to be and gradually lo entire control of head, neck, wings, and legs. In this prostrate con tion it remains until death takes place without a struggle. In r cases the paralytic stage is preceded by diarrhea, which, howev never becomes profuse or watery, but consists chiefly in a discha of bile-stained mucus.

BACTERIOLOGY.

A microscopic examination of smear preparations prepared fr the blood (Pl. I, fig. 1), abdominal exudate, intestinal contents, and tissues of the various organs, including the bone marrow, the mening and the hemorrhagic exudations in the muscles, reveals the prese of a medium-sized micrococcus arranged in short chains. With exception of the intestinal contents, it is usually found in pure cultu

MORPHOLOGY.

The specific microorganism is, as stated, a micrococcus rang from 0.6μ to 0.8μ in diameter, and arranged in the form of a str tococcus. There is a great diversity as to the number of eleme constituting a chain. In tissues they usually appear in short cha of from two to eight cells, while in certain media they form lon strands. The latter are best demonstrated in bouillon cultures an the condensation water of agar and blood serum. They are usu regular in arrangement and size, although irregular elements occasionally observed. In some cases bacillary forms are seen, pr ably due to the elongation preceding division; and in others a tinct line of demarcation is seen to traverse the cell, dividing it i two hemispheres. This line of division may run parallel with chain or perpendicular on it, or both may take place simultaneou indicating that the original cell is dividing into four elements. (Pl fig. 2.) Larger cells, twice the ordinary size, are sometimes obser located either centrally or at one end. In old cultures involut forms appear as enlarged and irregular outlined cells with granu protoplasm.

The organism stains well by the ordinary aniline dyes, as well by Gram's and Gram-Weigert's methods.

It is nonmotile, and no capsule has been observed. It rapidly lo its pathogenesis and also its vitality when not transferred to fr media about every three weeks.

BIOLOGY.

Description of Plate I.

Fig. 1. Forty eight-hours old bouillon culture. Diagrammatic d
with camera lucida. Zeiss 2 mm. oil immersion objective and No.
ing ocular.

A, Chains of streptococci.

B, Skeins of interwoven chains of streptococci.

C. A chain showing the longitudinal and transverse division of
which are sometimes observed.

Fig. 2. Cover-glass preparation of peritoneal exudate from a
which died forty-eight hours after an intraabdominal injection.
Gram's method and counterstained with eosin. Camera lucida d
with 2 mm. oil immersion objective and No. 6 compensating ocula

Description of Plate II.

Fig. 1. Cover-glass preparation of blood from a chicken ino
venously and which died in forty-eight hours. Preparation stai
rel's blue. Camera lucida drawing made with Zeiss 2 mm. oil i
No 4 compensating ocular.

A, Nucleated red blood corpuscles

B, Chains of streptococci

C, Leucocytes.

Fig. 2. Section of liver of hen which died spontaneously and w
by owner for examination. Camera lucida drawing with 4 mm.
No. 4 compensating ocular. Stained by Gram's method followed

A. Liver cells undergoing parenchymatous degeneration.

B, Engorged capillaries. Only the nuclei of the red corpuscles

C. Branch of portal vein.

With higher magnification the streptococci may be seen in the
well as in the parenchyma

Fig 1

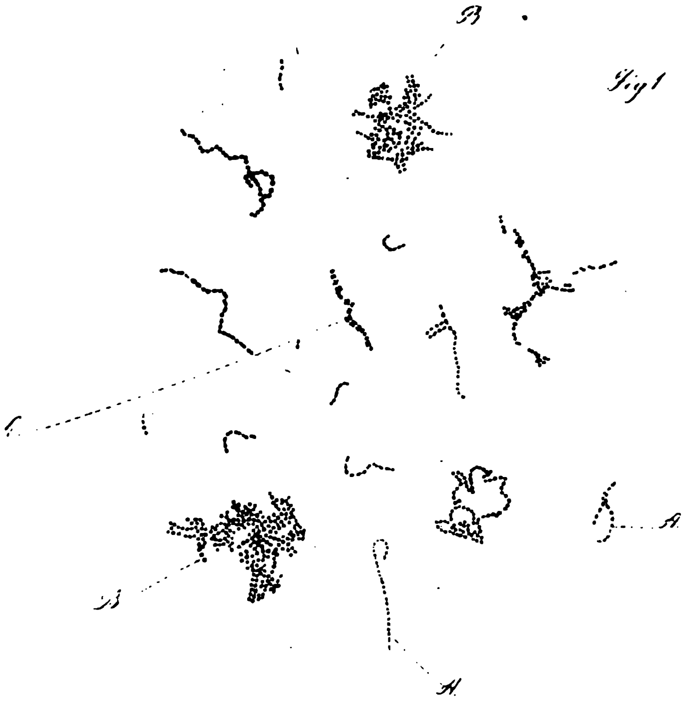
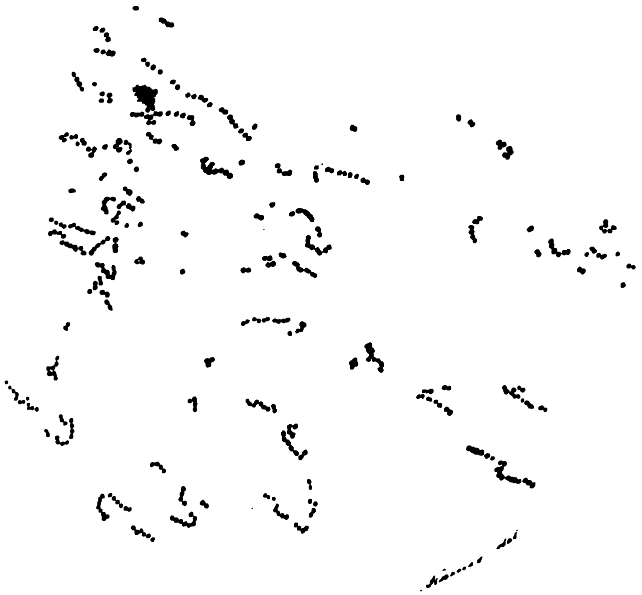


Fig 2



APPEARANCE OF THE STREPTOCOCCUS.

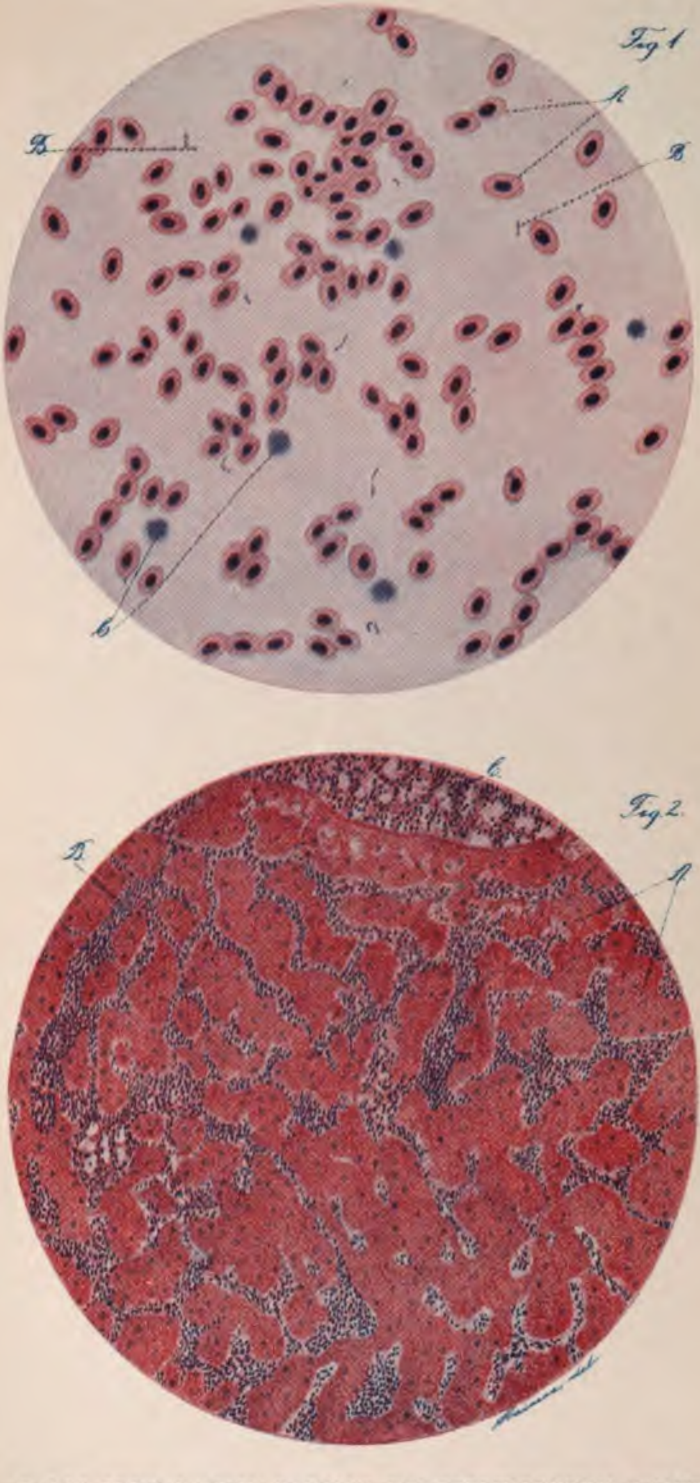


FIG. 1.—BLOOD FROM CHICKEN SHOWING THE STREPTOCOCCUS INFECTION;
2.—PARENCHYMATOUS DEGENERATION IN THE LIVER OF HEN.

CULTURAL CHARACTERISTICS.

Bouillon.—In alkaline peptonized beef bouillon[1] growth takes place within twenty-four hours at 37° C. It develops in long chains which, at the bottom and along the side of the tube, form skeins or balls of flocculent appearance, while the medium remains clear. In three days the growth settles to the bottom as a white nonviscid deposit which, on agitation, breaks up into numerous small particles without causing a uniform turbidity of the fluid. Under the microscope the long chains are frequently seen to be interwoven in knotty masses or else straight, wavy, or twisted.

Agar.—When sparsely sown on slant agar the growth consists of small shiny, grayish colonies about 1.5 mm. in diameter. By transmitted light they appear to have a brown center surrounded by an irregular pale bluish border, probably caused by projecting strands of the streptococcus. The colonies develop within twenty-four hours, and reach their maximum size on the third day. In stab cultures minute spherical grayish white colonies with fimbriated borders appear along the entire line of puncture. They do not tend to coalesce and only slight growth is noticed on the surface.

On agar plates the surface colonies appear similar to those on slant agar when sparsely sown. The deep colonies form minute pearly points of granular appearance, and with a hand lens their outline is seen to be ciliated. On glycerine-agar and serum-gelatine-agar, growth is similar but more profuse.

Gelatin.—In stab cultures growth is not noticed until the fourth or fifth day. At this time a finely granular line of minute spherical colonies, grayish white in color, are observed. These colonies never exceed the size of a pinhead and have a fimbriated border. The growth is neither abundant nor characteristic and does not spread on the surface. Liquefaction does not take place. On gelatin plates the surface growth resembles that on agar but is slightly more opalescent.

Blood serum.—Small whitish colonies 0.6 to 0.8 mm. in diameter, sometimes having a uniform yellowish tint, appear in the course of twenty-four hours. They do not coalesce, but the water of condensation becomes turbid and contains small gray clusters of the organism.

Milk.—This is a favorable medium for the development, but growth takes place without visible change. No whey is formed nor is the milk coagulated, though in old cultures there is a tendency to coagulation manifesting itself by solidification of the lower stratum, which can be seen only when the tube is turned upside down. In litmus milk the blue coloration changes to a pale madder pink in the course of a few days, indicating the formation of acid.

---

[1] All bouillon media were made in the usual manner having a titre —0.5 per cent to phenolphthalein. Other media were + 1.5 per cent phenolphthalein.

Potato.—No growth has been observed after inoculation ma directly from the tissues. A skein of streptococci tranferred fron bouillon culture produces no visible results beyond a slight moistu at the point of inoculation.

Fermentation of sugars.—Bouillon containing 1 per cent of dextr in fermentation tubes furnishes a very favorable medium. The grow in the open bulb is exceedingly vigorous and extends through the a into the closed tube. It is much more profuse than in ordinary p tonized bouillon, but otherwise the growth is similar. The medi remains clear but the reaction changes from alkaline to acid. F mentation tubes containing 1 per cent of saccharose and lactose sh similar growth and changes. Gas is not produced in any of th sugar-containing media. The acidity in the tubes causes a grad diminution of virulence and the destruction of the organism in a f weeks.

Indol and phenol.—Cultures, after forty-eight hours developm in Dunham's solution, when treated by the method of Kitasato, do n give any indol reaction. When week-old bouillon cultures are distill with hydrochloric acid the distillate fails to show either phenol indol reaction. (Weyl-Lewandowski.)

Temperature requirements.—In suitable media growth occurs m abundantly at 37° C., while at room temperature development is slow and less profuse. Inoculated media kept at a temperature of 16° 18° C. becomes fertile, but at 8° to 12° C. no development takes pla At 41° C. the tubes usually remain sterile, and at 42° C. no growth ever observed.

Thermal death point.—Bouillon tubes containing 0.25 c. c. of twenty-four-hour bouillon culture when exposed at 55° C. for seve teen minutes remain clear. Exposure for eleven minutes to 60° destroys the organism, but growth occurs after ten minutes at t temperature. At 70° C. an exposure of four minutes suffices to p duce sterility.

Effect of desiccation.—Empty sterile tubes were inoculated with t loopfuls of a twenty-four-hour bouillon culture and dried overnight the incubator. When subsequently exposed to diffused light for f days the tubes remained sterile after bouillon had been added and t tubes incubated at 37° C.

Action of disinfectants.—In determining the germicidal power carbolic acid a measured volume of a twenty-four-hour bouillon cultu was intimately mixed with an equal volume of a carbolic acid solutio thereby reducing the strength of the disinfectant one-half. Two pl inum wire loopfuls were then transferred to fresh bouillon tubes aft varying periods of exposure. After thirty seconds in a 2.5 per ce solution of carbolic acid no growth occurred, while a 1 per cent sol tion of carbolic acid killed the organism in two minutes. Wi bichloride of mercury an exposure of one minute to a $\frac{1}{1000}$ soluti prevented growth. Experiments were also made with creolin on account of the frequency with which this chemical is used as a disinfecting agent in the chicken house. The results showed that after a period of four minutes in a 1 per cent solution the streptococcus is killed. Formalin, in the strength of a 0.25 per cent solution, killed the organism in two minutes. Lime water had a germicidal effect only after three hours exposure.

SUMMARY OF CULTURAL CHARACTERISTICS.

1. Color of colonies upon dry media does not show dewdrop formation nor become translucent, but appear opaque and granular, of grayish white color with dark-brown center, lighter border, and ciliated circumference.
2. Growth on gelatin requires four days; the colonies do not become confluent, and the gelatin is not liquefied.
3. Growth in bouillon is not attended by any turbidity, but flocculi form inside of twenty-four hours on the sides and at the bottom of the tubes and settle to the bottom on the third day. The sediment is flaky and breaks up into fine particles on agitation. Changes alkaline to acid reaction.
4. It does not change the appearance of milk, but causes slight acidity and thickening of the lower stratum without coagulation of the casein.
5. No visible growth on potato.
6. Size 0.6 to 0.8μ. Forms short chains with few exceptions; divides transversely and vertically and forms tetrads occasionally. As a rule chains consist of an even number of segments.
7. Stains by Gram's and Gram-Weigert's methods.

PATHOLOGICAL HISTOLOGY.

The spleen in all cases is more or less enlarged, showing hyperplasia of the Malpighian corpuscles. The pulp contains numerous areas of extravasated blood. When a stained section is examined by means of a hand lens a number of circular semitransparent foci, the size of a pin hole may be noted. These are found on microscopic examination to be centers of necrobiosis, consisting of parenchyma which has undergone coagulation necrosis, and surrounded by a more or less well-defined capsule of embryonic and further developed connective tissue cells and filaments. (Pl. III, fig. 1.) Among the cell debris and broken-down reticular meshwork are seen numerous chains of the streptococcus, which may be present in such abundance as to give the impression that the entire focus consists of a homogeneous granulated mass. By means of a high-power lens and careful focusing, it is, however, not difficult to bring out the individual elements and chains. (Pl. III, fig. 2.)

The kidneys.—On microscopic examination the kidneys show the pa ological alterations characteristic of septicemia, varying in intens from the slightly swollen epithelial cells of a beginning parenchymat degeneration to the well-pronounced disintegration of the renal thelium of acute nephritis. The degree of degeneration depends, a rule, upon the course of the disease. If a bird succumbs sudde or in the course of a few hours the pathological changes are either apparent at all or but slightly pronounced, while, on the other ha a duration of three or four days to a week results in acute exudat nephritis. The swollen or disintegrated epithelium of the tubes s rounds irregular masses of coagulated exudate and white blood c puscles, among which are seen numerous short chains of streptoco The capillaries, especially of the cortex, are in places filled with same microorganism; in fact, its presence may be observed in vary abundance throughout the entire structure.

The liver.—In spontaneous cases with sudden death the liver sh extreme hyperemia; in fact, the microscopic examination shows distended capillaries to occupy as much as or more space than parenchyma proper. (Pl. II, fig. 2.) The liver cells have a sligh granular appearance besides showing the fatty infiltration which usually seen in the liver of well-kept fowls. When death does occur until after twenty-four hours the liver cells also show parenc matous or fatty degeneration; their outlines become indistinct, the b very granular, and the nucleus takes the stain but faintly. Interlo lar and intralobular collections of round cells and leucocytes appe and in more chronic cases centers of coagulation necrosis may be se The streptococcus is present as well in the capillaries as in the par chyma, but most abundantly among the emigrated leucocytes and the necrotic centers.

The lungs.—When sectioned through the areas of congestion lungs show the lobules in some cases to have become hepatized. T walls of the bronchioles are thickened and the streptococcus may seen in the minute capillaries thereof. The air vesicles are filled w plasma, red blood corpuscles, and epithelium, among which the mic organism is easily detected.

Technique.—In preparing the tissues for histological examinat they were in all cases embedded in paraffin, after hardening in Z ker's fluid, or in gradually increasing strengths of alcohol. The tribution of the streptococcus and the pathological alterations in tissues were nicely brought out by Gram-Weigert's stain followed eosin, or carbol-fuchsin counterstained with Lœffler's methylene bl Other stains employed gave less satisfaction. In cover-glass prepa tions from the blood or exudates, especially from chickens, beauti pictures may be obtained by means of Borrel's blue and eosin.[1]

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[1] Comptes rendus de la Société de Biologie, April 15, 1899, p. 249.

PATHOGENESIS.

[NOTE.—When not otherwise stated there has been used in all inoculation experiments a twenty-four-hours-old bouillon culture.]

EXPERIMENTS ON CHICKENS.

Intravenous inoculation.—A dose of 0.10 to 0.50 c. c. injected into the wing vein causes death in from forty-eight hours to four days. On the day following the injection the temperature rises several degrees (maximum temperature, 110.7° F.), but the appetite is retained and in rare cases only do the birds show any symptoms of illness. As a rule, they appear perfectly well until the evening of the second or third day, and are found dead the following morning. The pathological alterations found on postmortem are essentially those of acute generalized septicemia. (Pl. IV.) The liver is very much enlarged and fatty degenerated. (In one case the liver of a 4-pound chicken weighed 127 grams, or about one-sixteenth of the body weight.) The gall bladder is distended. The body cavity contains a varying amount of a serosanguinolent exudate, which in one case amounted to 85 c. c. The intestines show swollen hemorrhagic areas, especially on the duodenum and colon, and contained a mucosanguinolent fluid. The spleen and kidneys are dark and swollen and the lungs contain hepatized areas of varying extent. The heart is pale and flabby and the pericardial fluid is increased in amount, and is turbid and of a reddish color. The meninges are engorged and the interspaces filled with blood-stained serum. The bone marrow is deeply congested.

Cultures made from the above described lesions give in all cases numerous colonies of the specific streptococcus.

Intramuscular inoculations.—Doses varying from 0.25 to 1 c. c. were injected into the pectoral muscles without producing any noticeable effect.

Feeding experiments.—Chickens which had fasted for twenty-four hours were fed a few cubes of bread soaked in a fresh bouillon culture. This was repeated for three consecutive days. Death followed in four out of six cases in from four to thirteen days from the beginning of the experiment. The fowls gradually became listless, refused to eat, and remained quiet in a corner of the cage. The eyes were closed and the head drooping until finally it rested on the floor. Diarrhea was present, but not in all cases. The postmortem lesions were typical and in every respect similar to those described below, as observed in a chicken fed on the organs of a rabbit that had died from the disease. The two remaining chickens from this experiment will be referred to under the heading "Immunization."

Chickens fed on viscera of rabbits that had succumbed to the disease died in from three to ten days. The affected organs, as liver and spleen, are finely minced and thoroughly mixed with oats, the dose as a rule amounting to 30 grams of the organs. The mixture is fed after tv four hours of fasting and no other feed is given until the entire aı has been eaten. For illustrating the results the following case is qı

Brown Leghorn rooster, 1 year old and in thrifty condition, on June 7 v 30 grams of liver from a rabbit that had died the same day as a result of an i nous injection with bouillon culture. The bird exhibited the symptoms de above, the temperature gradually rising 2° to 4° until it was found dead morning of June 12. The postmortem showed anemic condition of the ı membranes of the mouth. The esophagus contained frothy mucus, which a seen in the gizzard. The crop was filled with grain, although the bird ha nothing for the last few days. The liver was pale, enlarged, and showe degeneration. The spleen was slightiy swollen and congested. The kidney hyperemic and the lungs almost completely hepatized. The bloody serous e half filled the body cavity and a few loops of the duodenum and a portion colon appeared inflamed. The intestinal contents at these points consisted of stained mucus. In the subcutaneous tissue were numerous small reddish of hemorrhagic extravasations. Bacteriological examination of the various showed the streptococcus in pure cultures.

EXPERIMENTS WITH DUCKS.

A white duck was inoculated intravenously with 0.5 c. c. pept beef-broth culture on May 8. The bird appeared well until the day after injection, when it was observed to have lost all pov coordination and use of the wings. The temperature was 109. and the appetite capricious. Death occurred on the twelfth day. postmortem revealed a verrucose endocarditis with the mitral greatly thickened by a growth of a yellowish color containing ne areas. From this lesion the streptococcus was isolated. All the organs were apparently normal.

A second duck received 0.25 c. c. in the wing vein and became what similarly affected after eleven days. It remained prostr the coop for three days, but finally recovered the use of wings and When chloroformed on the twenty-fifth day for a postmortem ination no pathological lesions were observed in any of the o Cultures made from heart, spleen, and kidneys remained sterile.

Subcutaneous and intramuscular injections with 0.75 c. c. of a bo culture produce no effect nor have any noticeable symptoms fol the feeding of large quantities of affected viscera or bouillon cul A duck within two weeks was fed the viscera of three rabbit subsequently ate bread soaked in 40 c. c. of bouillon culture wi suffering any ill effect.

EXPERIMENTS WITH PIGEONS.

A pigeon injected with 0.5 c. c. in the wing vein died on the f day with postmortem appearances of septicemia. Previous to d watery discharge from the eyes was noticed. The conjunctiva of eyes were greatly inflamed and the subcutaneous tissue on the

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DESCRIPTION OF PLATE III.

Section of spleen of white mouse which died four days after a subcutan injection with fresh bouillon culture of the streptococcus. The section is sta after Gram-Weigert's method and counterstained with eosin.

Figure 1 is a camera lucida drawing made with a Zeiss 8 mm. objective No. 4 compensating ocular.

The explanation of the letters applies to both figures.

A, Trabeculæ.

B. Engorged capillaries.

C, Malpighian corpuscles.

D, Pigmented splenic pulp.

E, Necrotic foci. The granular appearance in figure 1 is shown under higher magnification in figure 2 to be due to numerous chains of the strept cus, among which are seen leucocytes and lymphoid bodies.

F. Newly formed connective tissue assuming the form of an encapsul membrane.

DESCRIPTION OF PLATE IV.

Wyandotte hen inoculated with 0.2 c. c. of a twenty-four-hour bouillon ture in the wing vein. Death occurred four days later.

Note hyperemic condition of lungs and intestinal loop and hemorrhagic date in body cavity. Also the enlarged liver.

Fig 1.

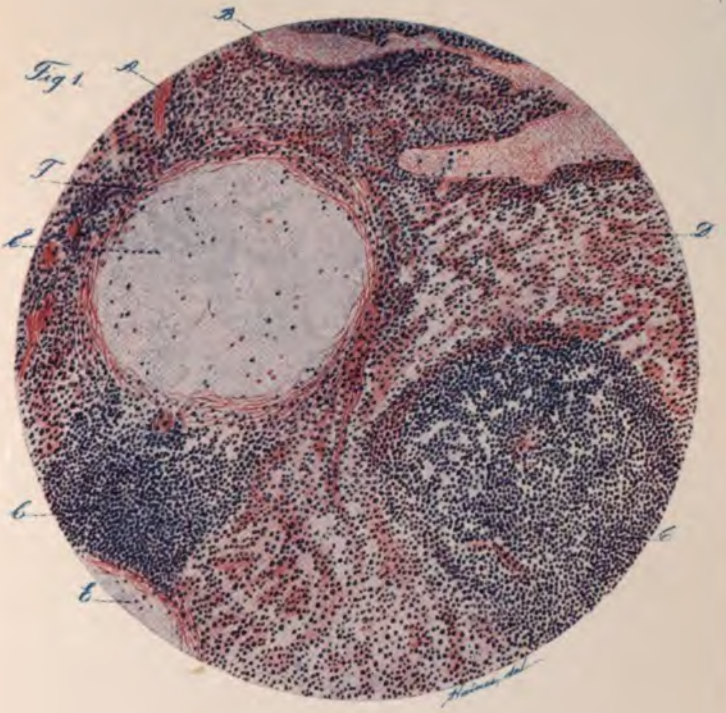
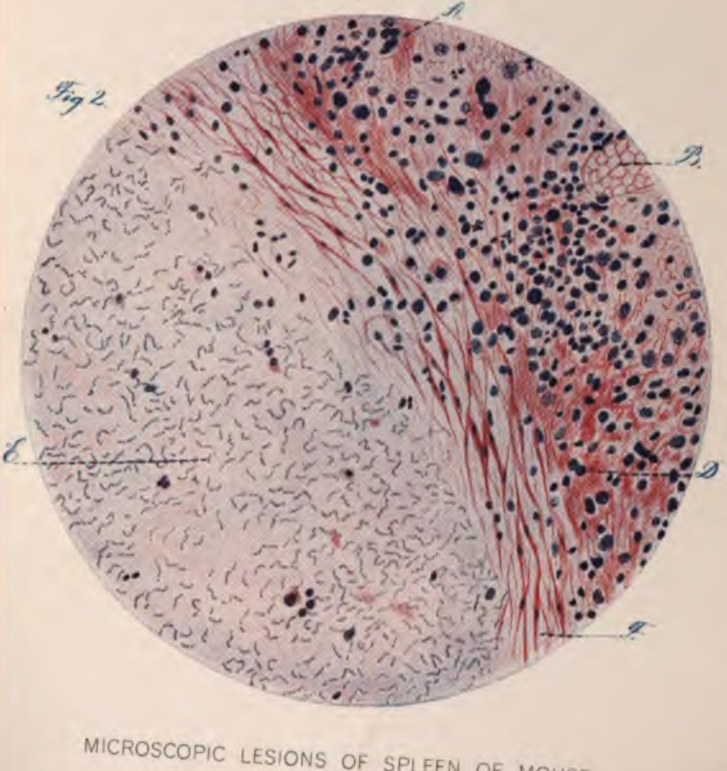
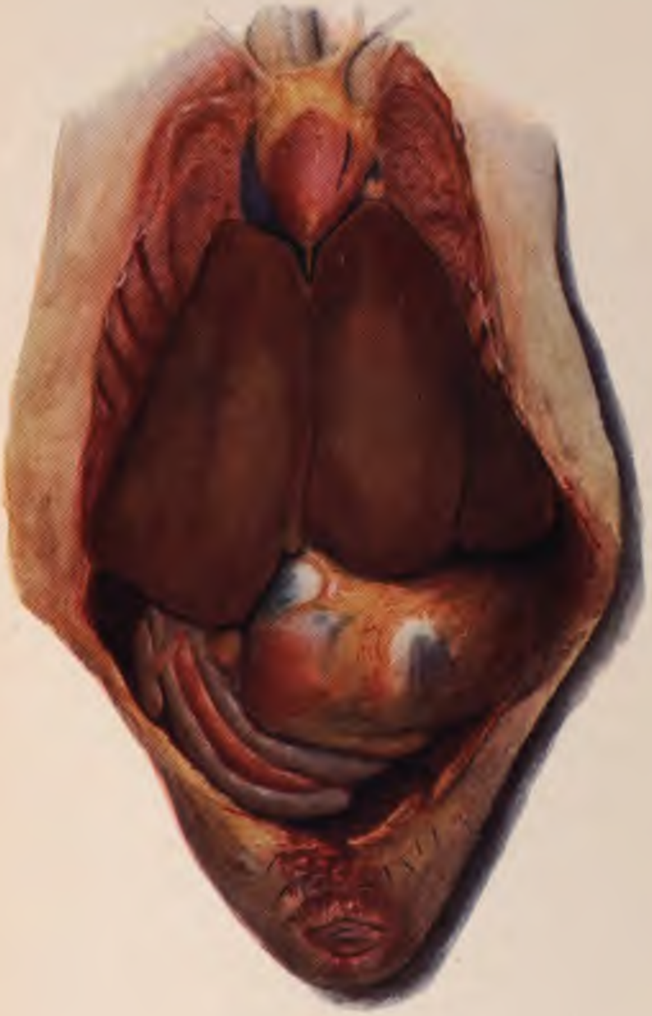


Fig 2.



MICROSCOPIC LESIONS OF SPLEEN OF MOUSE.



POSTMORTEM APPEARANCE WITH ORGANS IN SITU.

side of the head was hemorrhagic. The subcutaneous tissue of the neck was the seat of a diffuse hemorrhagic exudation. The lungs were congested, the liver enlarged and fatty, and the kidneys and spleen hyperemic. The body cavity contained about 5 c. c. of a blood-stained exudate. Pure cultures of the streptococcus were obtained from the affected organs.

Intramuscular inoculations as well as feeding experiments proved negative, and when subjects treated in this manner were destroyed within two weeks the absence of the streptococcus from the organs and tissues was proved.

EXPERIMENTS WITH RABBITS.

Intravenous inoculation.—When a dose varying in size from 0.10 to 0.50 c. c. is injected into the posterior auricular vein death occurs in from thirty-six hours to three days. On the day following injection the temperature rises to about 105.3° F. The animal appears well and eats more or less of its food, but usually on the second morning it is found dead. The pathological alterations found on postmortem examination are characteristic of generalized septicemia and are nearly identical in all cases. On opening the abdominal cavity the intestines are seen to be bathed in a profuse sero-sanguinolent exudation. The spleen is deeply congested, darkened, and enlarged to three or four times the natural size. The liver is enlarged and shows parenchymatous degeneration. The gall bladder is usually distended and the streptococcus has been obtained from the bile. The lungs show irregular areas of hepatization. The kidneys are enlarged and reddened. The bladder frequently contains blood-stained urine, and smear preparations made from the contents have shown the presence of the streptococcus. The intestines are occasionally inflamed in small areas, and at these points the mucosa is covered with a viscid blood-stained mucus. Streptococci have been found in these lesions also. The meninges of the brain are engorged and a bloody lymph is present under the lining membrane of the brain as well as in the fourth ventricle. The spinal cord is normal, but the cancellated tissue of the vertebræ is dark and blood-stained. The marrow of the long bones is deeply congested and contains the streptococci, usually in short chains of from two to four elements.

Intraabdominal and intrapleural inoculations.—With a dose of 0.50 c. c. of a bouillon culture usually intraabdominal and intrapleural inoculations produce death in two to four days. The postmortem lesions are similar to those found after intravenous injection.

Subcutaneous inoculation.—With a dose of 0.75 c. c. a subcutaneous inoculation destroys rabbits in from two to six days, death usually occurring on the third day. The lesions observed are those of a general infection, and in no way differ from those above described. No local lesions appear at the point of inoculation.

EXPERIMENTS WITH MICE.

Intraabdominal inoculation.—A dose of 0.01 c. c. by intraabdom inoculation proves fatal in forty-eight hours to both white and g mice. The postmortem examination shows a greatly enlarged darkened spleen. The liver and kidneys are hyperemic, and the p toneal cavity contains a large amount of blood-stained serous exud (Pl. I, fig. 2.) The lungs show inflamed areas. Pure cultures of streptococcus are readily obtained from the various organs.

Subcutaneous inoculation.—The same sized dose of a similar cult when injected at the base of the tail, results in death in from tw five days. No lesions are observed at the point of inoculation. postmortem reveals the same general appearance as by the for method, but the exudate in the peritoneal cavity assumes the forn a yellowish pseudomembrane covering the liver and containing streptococcus in abundance. The liver is fatty degenerated with s pin-head areas of coagulation necrosis usually along the borders. spleen is swollen to four or five times its normal size and is seen. microscopic examination, to contain minute necrotic foci. (Pl. fig. 2.)

EXPERIMENTS WITH DOGS.

A black terrier was inoculated in the posterior auricular vein 1 c. c. of a bouillon culture on May 23. The animal soon became s refused its food, and showed a temperature of 104.1° F. On May pronounced lameness was noticed in the right front leg, manipula of which demonstrated that the pain was located in the scapulo-hum articulation. The lameness was supposed to be due to some exte injury, and continued for five days, after which the dog recove In view of a similar experience described by Dr. V. A. Moore[1] in pigs injected with streptococcus culture, this symptom is of more t ordinary interest.

A fox terrier injected intravenously on June 4 with 2 c. c. of bo lon culture became lame in the right fore leg on June 8. On Jun the temperature rose to 103.6° and the appetite became capricio The cause of the lameness seemed to be located in the same regio in the previous case. The dog then began to improve, and by J 17 had completely recovered. When chloroformed on July 3 lesions could be found in the black terrier. In the fox terrier small ulcerative areas were observed on the head of the humerus on the articular surface of the small sigmoid cavity of the ulnar. lesions of the ligaments were seen.

Another dog was fed for one week on the viscera of chickens t had succumbed to the disease, but outside of loss of appetite, nau and vomiting, no ill effects were noticed.

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[1] Bull. No. 3, Bureau of Animal Industry.

EXPERIMENTS WITH SHEEP.

Three sheep were each injected with 1 c. c. of a fresh bouillon culture intravenously, intraabdominally, and subcutaneously, but without any appreciable results.

EXPERIMENTS WITH GUINEA PIGS.

Various-sized doses were used in inoculating these animals, but they proved to be refractory in every instance. The only deaths that occurred during the experiment were caused by intercurrent diseases (two cases of pneumonia which did not show streptococcus). The animals were injected intraabdominally, intrapleurally, and subcutaneously with doses ranging from 0.25 to 1 c. c.

TOXINS, ANTITOXINS, AND IMMUNIZATION.

It has been clearly shown by Marmorek,[1] Bullock,[2] Bordet,[3] and others that serum with therapeutic properties may be produced by inoculating the streptococcus pyogenes into rabbits until a toxin is obtained, which by injection into susceptible animals will produce an effective antitoxin. The immunizing properties of the serum thus obtained is, however, but slight as compared to diphtheria antitoxin. It has been further demonstrated by Van de Velde[4] and others that serum produced by means of a streptococcus originating from a different source than that of the case to be treated has, in most cases, no therapeutic value whatever. This is probably due to variations in the biological properties of the different streptococci. The point in question is, therefore, whether the streptococcus we are dealing with here produces a toxin which, when injected into chickens or other animals, would cause the development of an antitoxin, and whether the latter would be of therapeutic value or possess prophylactic properties.

In order to ascertain the toxic effect of bouillon cultures inoculation experiments were made on rabbits and chickens with the sterile filtrate of bouillon cultures which had been allowed to develop for one, two, and three weeks. The results showed that intravenous injections of from 0.5 to 20 c. c. do not have any apparent effect, nor do similar injections with bouillon cultures sterilized by heat cause more than a slight rise of temperature and a quickly subsiding attack of diarrhea. That such injections have an immunizing effect is, however, clearly demonstrated in the following experiment:

A hen (No. 652) was injected in the wing vein with 1 c. c. of a sterilized bouillon culture on March 21 without any apparent effect.

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[1] Ann. d l'Inst. Pasteur, 9, No. 7, p. 593.

[2] Trans. Brit. Inst. of Prev. Med., first series, 1897, p. 1.

[3] Ann. d l'Inst. Pasteur, 11, No. 3, p. 177.

[4] Archiv. de Méd. Expér. Sér. I, tome 9, p. 835.

On March 30, 1.5 c. c. of a twenty-four-hour-old bouillon cultur injected in a similar manner, and on April 10, 2 c. c. of a similar cu was introduced. On April 20 this dose was repeated, and on Apri 3 c. c. of the same material was injected. It was, therefore, concl that the bird in question was immune. One month later—that is, on 30—0.75 c. c. of a virulent culture was injected intravenously in to ascertain if immunity was still present. No ill effect was obse and on June 14 the bird was chloroformed. The postmortem exa tion showed no pathological lesions, and cultures made from the va organs and from the blood remained sterile. A quantity of b about 1 ounce, was gathered under aseptic precautions. With serum obtained therefrom the following experiments were made:

Four hens were injected intravenously on June 14 with 0.5, 1.5, and 2.5 c. c., respectively, of serum. (See table below.) O same day the two hens which had received 1.5 c. c. were also inocul in the opposite wing, with a dose of 1 and 0.5, respectively, of vir bouillon culture. The other two, which had received 0.5 and 2.5 respectively, were left alone for one week, during which period showed no untoward symptoms, and on June 20 were inoculated w c. c. of virulent bouillon culture. All the birds remained perf well, and one week later—that is, on June 27—all four were given tional inoculations of virulent material. None of them seemed t any the worse for it, and all are alive and healthy at the present ing (end of August, 1901). As will be seen from the table below, checks—that is, two rabbits, one Plymouth Rock rooster, and one mouse—were used in order to demonstrate the virulence of the mat injected, and all of these succumbed in the course of two to three from the time of inoculation. The checks all showed the patholo lesions characteristic of the disease:

Table showing protective properties of serum from immunized fowls.

Subject.	Injection of serum.		First injection of virus.		Second injection of virus.		Result
	Date.	Dose.	Date.	Dose.	Date.	Dose.	
		c. c.		c. c.		c. c.	
Hen No. 430	June 14	0.5	June 20	1	June 27	1	Remained
Rooster No. 431	June 14 (a. m.)	1.5	June 14 (p. m.)	1	....do....	1.5	Do.
Hen No. 432	June 14	1.5	June 14	.5	....do....	1	Do.
Hen No. 433	....do....	2.5	June 20	1	....do....	1.5	Do.
Check No. 1 (rabbit No. 704)			....do....	.5			Died in 48 h
Check No. 2 (rabbit No. 705)					June 27	.5	Died in 3 da
Check No. 3 (brown mouse)					....do....	.1	Died in 36 h
Check No. 4 (cockerel No. 48)			June 14	.25			Died in 3 da

The above-described results conform entirely with those of ano series of experiments, which are given below:

On May 17, a rabbit (No. 602) was injected intravenously with c. c. of a sterilized bouillon culture, and five days later 1.5 c. c. o filtrate (Roux-Chamberland) from a one-week-old bouillon culture was similarly injected. On June 1, 0.25 c. c. of a twenty-four-hour-old virulent bouillon culture was given, and was followed on June 5 and 10, respectively, by the injection of 0.5 and 1.5 c. c. of the same material. Ten days later the rabbit was chloroformed, the blood drawn from the femoral artery under aseptic precautions, and the serum allowed to form in the ice chest. During the same afternoon a rabbit weighing 7½ pounds was given 2.5 c. c. of the serum in the posterior auricular vein. The same dose was repeated on the two following days. On June 23, 1 c. c. of a virulent bouillon culture was injected, and on June 27 a similar dose was inoculated, without producing any apparent effect.

A Brown Leghorn hen (No. 472) was injected at the same time as the last-mentioned rabbit, and was given 3 c. c. of the serum intravenously. On the following day 1.5 c. c. of the same serum was given in the morning and the dose repeated in the evening. On June 27, 1 c. c. of virulent bouillon culture was given in order to test the immunity of the bird. No apparent results followed.

As a check on the virulence of the cultures used a rabbit (No. 726) was inoculated with 0.5 c. c. simultaneously with the last inoculation of the above-mentioned rabbit and chicken. Death occurred on June 29—that is, within forty-eight hours—and postmortem examination showed the pathological alterations characteristic of this disease. The specific microorganism was found in pure cultures made from the affected organs.

On page 15 is mentioned an experiment in which 6 chickens were fed on bread soaked in fresh bouillon cultures. Of these 4 succumbed and 2 survived. The latter 2 were continually fed on bread soaked in bouillon cultures until about 60 c. c. of this fluid had been divided between them. As the birds remained unaffected it was supposed that they possessed either a natural or an acquired immunity, and to test this each was given an intravenous injection of 0.5 c. c. of virulent bouillon culture, a dose which in all cases has proven fatal. The birds remained well until the twelfth day, when 1 of them was seen to be lying down in the corner of the cage exhibiting the symptoms usually observed in the more chronic cases of this disease. After remaining semiconscious for two days it was chloroformed in order to test the immunizing properties of the blood. On postmortem no lesions were noticed except a chronic pericarditis from which the streptococcus in question was obtained, while cultures made from the blood and organs remained sterile. The gathered blood was placed in the ice chest, and as soon as the serum had formed 2 rabbits were given 1.5 c. c. each intravenously. As a result of a subsequent inoculation with an ordinary fatal dose (0.5 c. c.) of virulent culture both rabbits succumbed, suggesting that the feeding of virulent material does not produce the same amount of antitoxin in the blood as that which results from i venous injections.

The other fowl in the feeding experiment resisted the above- tioned intravenous injection, and was apparently in a healthy condi twenty-four days later when, in order to reenforce its supposed im nity and at the same time test its power of resistance, it was inocul with 1 c. c. of a twenty-four-hour bouillon culture in the wing On the eleventh day following the bird died, having refused t for three days previously and having shown all the symptoms chronic case of this disease. The postmortem examination sho typical lesions, although in a more advanced stage than those usu observed and containing the streptococcus in pure cultures.

This experiment demonstrates that the immunity of this whether natural or acquired through the feeding of virulent mate did not compare with that resulting from the injection of antit serum, followed by inoculation of one or more fatal doses of vi As it may become necessary in subsequent outbreaks of this dis to be able to prepare a preventive remedy at short notice, exp ments along this line will be continued, and, in case another oppo nity should present itself, the results will be submitted to a prac test.

The actual source of infection in this outbreak was not ascerta beyond doubt, though a number of observations point to the fact the stagnant pool before mentioned, which constituted the princ water supply of the chickens, was the chief carrier of the disease

Unfortunately a typical sample of this water was not obtained feeding experiments, as it had rained continuously for several before the place was visited, and when the possibility of the infec being propagated in the pond was suggested to the owner he at decided to eliminate this factor, and had it drained without delay. eight-ounce bottle of the water was secured, however, and with the following experiments were made.

Attempts to obtain the microorganism direct from the water fa on account of the presence of an abundance of fast-growing fungi other saphrophytes, which prevented the isolation of the specific c through the ordinary method of plating. The sample of water therefore divided between two fowls and administered to them means of a medicine dropper. Three days later one of these fow Light Brahma, was found dead, without having shown any prelimin symptoms. It must, however, be mentioned that this bird was i unthrifty condition before the experiment was begun. On postmor examination it was found that both of the thyroid glands were gre enlarged (colloid degeneration). The left lung was completely h tized and the apex of the right lung was in a similar condition.

intestines contained a great number of tapeworms (nodular tæniasis).[1] Cultures made from the heart, liver, and kidneys remained sterile.

The other case, however, although it did not terminate fatally, is of more interest.

A thrifty Brown Leghorn hen was fed with the water in a similar way as above described. On the fifth day following it appeared depressed and refused its food. The temperature was 107.6° F., and frequently during the day the bird was found with ruffled feathers reclining in a corner of the cage. The symptoms gradually became more aggravated until three days later when it was completely prostrated and showed a temperature of 108.4° F. In this condition the bird was removed from its cage and given the freedom of the basement. It worked itself laboriously into a corner and remained there for twenty-four hours, when it commenced to improve. It was allowed to convalesce until it was able to walk quite a distance without lying down, but, fearing that the lesions causing the chronic course of symptoms might become resolved, the fowl was chloroformed on the sixteenth day after the experiment was begun. The postmortem, however, showed nothing but a slight pericarditis, from which the streptococcus was obtained in cultures, although it could not be detected on microscopic examination of cover-glass preparations. Media inoculated from the various organs did not become fertile. The symptoms exhibited in the early stages of the disease were so characteristic that there can be little doubt as to the diagnosis, although the bird nearly succeeded in throwing off the disease before it was killed.

Owing to the suspicion of the owner regarding the parched wheat being the possible cause of the outbreak, a number of healthy chickens were fed at this laboratory with a quantity thereof, but all remained unaffected.

CONCLUSIONS.

The present investigation has shown—

1. That a highly fatal epidemic among chickens may be caused by streptococci.
2. That the streptococcus isolated as the causative agent in the outbreak described is possessed of unusual virulence for chickens, causing sudden death without premonitory symptoms, and with a mortality of 100 per cent of those affected and 92 per cent of the entire flock.
3. The streptococcus is pathogenic to rabbits, mice, ducks, pigeons, and dogs, but not to guinea pigs and sheep.
4. Immunity may be produced in susceptible animals by means of the filtrate of bouillon cultures, sterilized bouillon cultures, and the serum from artificially immunized animals.

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[1] Circ. No. 3, Bureau of Animal Industry.

5. The disease in question has not, so far as could be asce been described before, although diseases resembling it in sy and postmortem appearances have been described by Maz Rabieux,[2] but they were caused by different microorganisms.

6. While it can not be disputed that the streptococcus herein d has fulfilled the required postulates necessary to establish it relation to the disease, still no attempt will be made to classif distinct species, such as has been done with the streptococci erysipelas, strangles, and influenza.

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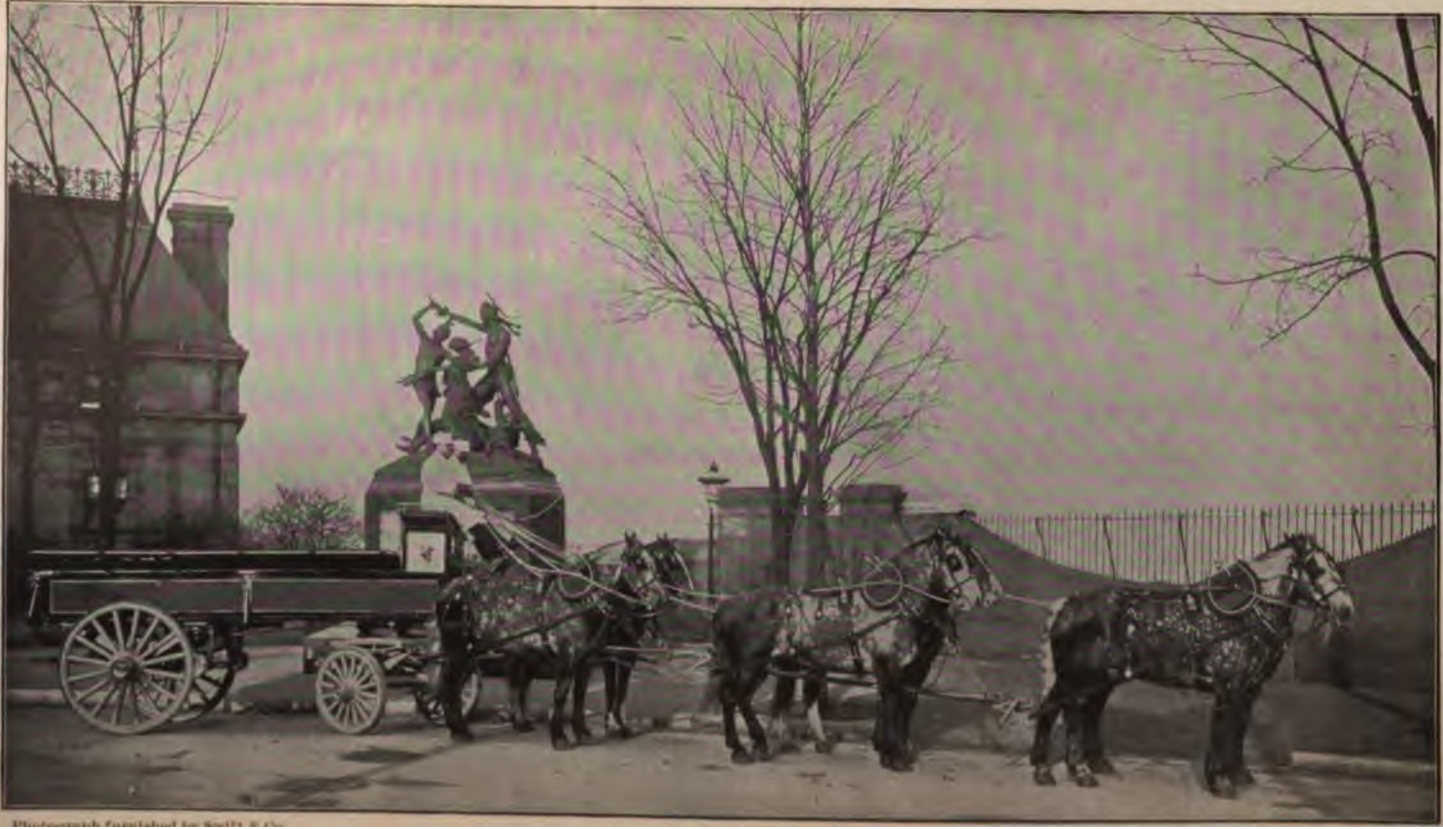
[1] Centrabl. f. Bact., Vol. XXVI, p. 181.

[2] Journ. d. Med. Vét., Mch., 1900 (ser. 5, Tome IV, p. 129).



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U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY—BULLETIN No. 37.
D. E. SALMON, D. V. M., Chief of Bureau.

MARKET CLASSES OF HORSES.

BY

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WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1902.

LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
Washington, D. C., November 29, 1901.

SIR: I have the honor to transmit herewith a manuscript on "Market classes of horses," by Mr. George M. Rommel, expert in animal husbandry, of this Bureau. The information contained herein has been obtained largely by visits to the principal horse markets of the country, representative breeding establishments, and hunt clubs. It is believed to be the kind of information desired by the horse raisers, and I therefore recommend that the manuscript be published as Bulletin No. 37 of this Bureau.

Respectfully,

D. E. SALMON,
Chief of Bureau.

Hon. JAMES WILSON,
Secretary.

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MARKET CLASSES OF HORSES.

INTRODUCTORY.

The growth of the horse market during the past few years, its present healthy tone, and the apparent promise of a continuance of these conditions for at least a considerable time to come, warrant the bestowal of time and attention, not only upon the general demands of the market, but also upon rather detailed examinations of the various kinds of horses that are wanted.

In this article the market classes are generally referred to in the colloquial terms of the market. This, it is thought, will, to a considerable extent, tend to prevent confusion and misunderstanding. Aside from casual references, no attempt is made specifically to discuss breeding or fitting for market.

For convenience, all points of an anatomical nature are grouped under the head of "Conformation." Although according to the generally accepted usage by the best authorities on score-card practice and live stock judging, this is a somewhat broad use of the term, it is not technically incorrect, and the advantages gained by the elimination of details that might prove wearisome will, it is believed, warrant such treatment.

The classifications here considered are made as comprehensive as possible, embracing the views of dealers in all of the principal markets of the country. All the classes mentioned will not be found present in all markets, nor will all markets have exactly the same qualifications, but these differences are so slight as to be practically unimportant.

Especially in regard to size and weight, it must be borne in mind that the figures given are not arbitrary. Not only will they vary in different parts of the country with different markets, but dealers in the same market will differ in their ideas as to the exact sizes and weights of the various classes. With this, as with all points, the attempt has been made to strike an average—to obtain a consensus of opinion, as it were. It is always to be remembered that "doctors differ," both as to the symptoms of a patient when ill and as to his normal appearance and proper conduct when well.

Prices are seldom mentioned here, for the reason that they are
ject to continual fluctuations, and any that might be quoted woul
serviceable only for the time of writing. Such information is accu
only when gained from regular market publications, and is e
obtained.

For specific information regarding contemporaneous market co
tions there is no better or more easily approached source of infor
tion than the commission firms and dealers on the market, w
courteous assistance, it should be mentioned, has made this bulle
possibility; and no better school for practical instruction ca
imagined than an auction ring in one of our great horse markets
sale day during the height of the season.

PRIMARY CONSIDERATIONS OF THE MARKET.

A general observation of the horse markets in the United St
reveals very different conditions from those existing in the early
of the last decade. Before going into details and ascertaining
kind of horse that the several demands on the market require, t
facts present themselves for consideration:

First. The market is seen to be on a much firmer basis than it
in the years from 1893 to 1897. Not only are prices much hig
but, generally speaking, the competition among buyers is keen,
a serviceably sound, well-set-up horse of the right type, in good
dition, can almost always be disposed of at a profit to the produce

Second. One is impressed with the pronounced scarcity of ani
of the better grades, especially among light horses. Dealers ca
satisfy the demands that come to them for high-class roadsters, c
horses, and saddlers. Even among "business horses" a higher p
must often be paid than buyers desire, and it is said that this has
led some large establishments to send agents into the country to
advantage of the natural differences between farm and market pri
To a casual observer this is, perhaps, the most striking feature
presents itself. A change from a condition of overproduction
panic prices to one of scarcity and strong prices has come about wi
the course of less than five years.

Third. Going more into the details of the market, we find a pr
well defined system of classification. Buyers are on the marke
get horses of a certain type, and thus have created "classes."
true that there are still thousands of horses every year that are shi
in simply to be gotten rid of to sell for whatever they will br

CAUSES OF THE DEPRESSION OF THE LAST DECADE.

Going back of the firmness of the present market, the causes of the low prices and overproduction that preceded it present themselves.

PASSING OF THE STREET-CAR HORSE.

The recent depression of the horse business began about 1890. Up to that time immense numbers of animals were in demand for street-car use. A fairly good animal was used, but there was no certain fixity of type. This trade absorbed very many horses that had always constituted the overwhelming majority on the market—the small chunks and the general-purpose animals; and with the introduction of the cable car and, almost immediately after, the sweeping substitution of electric cars for horse cars in nearly all the large cities, these immense numbers of horses were thrown on the market without a demand for them, and the public was suddenly confronted with a condition of extreme overproduction. This, however, would only indirectly affect the higher grades. Extra individual horses maintained a fairly good scale of prices, and never at any time were they such a drug on the market as the commoner sorts.

The severest test to the market horse was yet to come. Strongly organized conditions might have tided over the effects of oversupply that the falling off of the demand for the street-car horse brought about, but the punishment was to be made all the more complete by the financial panic of 1893.

THE FINANCIAL PANIC OF 1893.

The great panic that began in this year, but whose influence was felt most severely in the horse-producing sections two years later, was really the most effective cause for the breakdown in the horse market. The cheaper grades fell still lower and the higher classes began a descent in prices that forced men out of the business and had a most disastrous effect in creating a general distrust of the horse, not only on the part of men who were already engaged in his production, but also with prospective producers. All classes of stock were affected, but it was the horse breeders who had the worst "scare," and it was freely predicted that horse raising would never again exist as a factor in live stock husbandry.

THE BICYCLE AND THE ELECTRIC CARRIAGE.

On the heels of the panic came the bicycle and in a few years the electric carriage followed. The bicycle influenced particularly the demand for cheap drivers—the inferior grades—and naturally intensified the downfall of prices. However, though for a time the growing use of the bicycle brought about a decline in the use of horses, its effect was hardly so severe as appeared; certainly it was not permanent. The use of the bicycle became most widespread among persons who could afford neither to purchase nor maintain a horse and am those who constitute a large part of the patronage of livery stal If it has severely affected the horse in any capacity, it is by inroads that liverymen claim it has made on their business. The r effective force for furthering the downfall in prices was simply fri which brought about an unnecessary unloading of horses on a ma already oversupplied. The results after the lapse of a few years, the adjustment of the bicycle to its proper place as an impor economic factor, with the return of the business to normal conditi give ample reason for such opinions.

Experience with automobiles has shown that in their present stat development their effect on the horse market is not serious. For b ness purposes they have not yet been found to be entirely satisfact whereas the bicycle has become an invaluable adjunct of business. present the "auto" is the least dangerous of all the deterring influe that operate against the horse market.

CAUSES OF PRESENT SCARCITY.

THE DECLINE OF HORSE BREEDING.

The lack of confidence in the horse-breeding business which resu from the depressing influences of the panic period undoubtedly brou about a decline in the breeding of the best grades. This can no shown very accurately, for the Twelfth Census has reported the lar number of horses in the history of the country. By a careful st of the market conditions, however, it is evident that a more exac market has found an inferior grade of horses from which to draw supply. Misfits and culls are common enough, but they are no demand. The scarcity that exists to-day is most apparent among better grade of horses, and we are forced to the conclusion that t horses have rapidly decreased in numbers, while unsalable, infe sorts have increased. The period of low prices caused men to s breeding good horses, but failed to stop the progress of the scrub

THE EXPORT TRADE.

Almost coincident with the beginning of the panic of 1893, a force began to operate to offset the disastrous conditions of the h market, so that while this date marks the beginning of the sev downfall in prices, it also marks the beginning of their revival.

The World's Fair year (1893) brought to the United States amon visitors those whose search for good horses for export, directed tow the great markets of the West, was to be the rejuvenating force would once more place the horse in his rightful position as a reve producer for the farm. The effect of the demand they created an almost instant rise in prices of the better grades. Inferior s were only sympathetically affected, for it is not profitable to ship thing but "toppy" animals. The growth of exports was tremendous. From about 3,000 in 1893, they have increased fifteen times over in seven years, and to all appearances the demand is by no means yet satisfied.

The exporters entered the market with a call for horses of definite qualifications that have been rigidly adhered to. Hodgepodge methods would not and can not pay in supplying this market.

The following statement of exports for the fiscal years 1890 to 1901, inclusive, shows an enormous growth:[1]

Exports of horses for the fiscal years 1890 to 1901.

1890	3,501
1891	3,110
1892	3,226
1893	2,967
1894	5,246
1895	13,984
1896	25,126
1897	39,532
1898	51,150
1899	45,778
1900[2]	64,722
1901	82,250

The demand for so many animals for export very greatly increases competition, and, as it represents a much broader field for the market to cover than formerly, it is a second cause for the apparent scarcity of good marketable stock. This trade is the means by which surplus stock may be marketed and good prices maintained. If no more horses are produced than are needed for our own uses, it will generally happen that the export trade can not exist; for home buyers can nearly always pay better prices than exporters, and it is easily seen that, when the supply is short, a strong market may exist independent of foreign demand. Information received within the last two months indicates that such conditions are largely present at this time. There is still a large demand from abroad, but prices have risen to such an extent that this trade has been very much diminished.

GROWTH OF THE LOCAL DEMAND.

With the growth of the export trade, the great increase in the demands of the local market has required horses in large numbers.

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[1] From reports of Bureau of Statistics, Treasury Department.

[2] The shipments to Africa during the last two years are largely responsible for the great increase for the years 1900 and 1901. This is shown as follows:

For fiscal year ended June 30, 1899	127
For fiscal year ended June 30, 1900	10,220
For fiscal year ended June 30, 1901	37,465

These exports, developed under abnormal conditions, must not be looked upon as permanent.

The increase of population, with a growing love of a good horse, the wonderful growth of business, call for many more horses t were needed for such purposes in the early "90's." The exac nature which characterizes the foreign demand is also coming to notable feature of the home demand.

This third cause—the local demand—combined with the export tr makes a broader market. Undoubtedly, there are as many horse the country now as ten years ago, though of an inferior quality, relatively there is a great scarcity.

GENERAL CONSIDERATIONS OF THE MARKET.

WHAT CONSTITUTES A MARKET CLASS?

By a market class we mean the demand that exists for a horse of tain characteristics definitely specified. We find the requirement certain work shall be done in certain ways. This requires a hors certain size, conformation, style, and action, and becomes more exact as time goes on and the demand for such a horse increases. For reason it is readily seen that classes on the market at one time ma cut off by reason of a change in the kind of work to be done change in the method of doing it; such, for instance, as the sub tution of electricity for horses as a motive power for street railwa On the other hand, we have an illustration of the creation of classes in the opening up of the English demand for the omnibus ho The increasing demand for hunters for both the local and export tr and the brisk trade in polo ponies are also instances of such conditio The kind of work and the manner in which it is to be done, therefo develop the buyer's demands and thus create the market class.

WHEN WILL A HORSE SELL WELL?

The question naturally arises, When will a horse sell well? Thi answered in describing the requirements of the various classes, wh is done elsewhere in this bulletin. An animal will be in good dema when he meets the qualifications of a market class; the more clea he does so the greater demand there will be for him and the hig will be his selling price; and a horse that goes into a class because breeder was successful in breeding him for that class is much m likely to sell profitably than one that drops into a class as the result an accident in breeding, handling, or fitting for the market. A bree must determine for himself whether he can produce such a horse dispose of him at a profit. That he will find a good demand for anim of the right type is quite certain. The individuality of the horse hi self, then, will indicate his class.

GENERAL ESSENTIALS OF A MARKET HORSE.

Before taking up the details of the various classes it may be well to consider the essentials that all classes must have—the requirements of a drafter as well as a coacher, or of a busser, as well as a cob, roadster, or saddler.

AGE.

Mature and well-broken horses are always the best sellers. A year or two spent in waiting for a horse to develop and educating him means an expenditure of time and money on the part of the purchaser which is, as a rule, undesirable, unless the horse is bought specifically for the purpose of fitting him for the finished market. The ideal age is five years, buyers usually purchasing animals ranging from five to eight. The classes vary somewhat in this respect. A horse intended for draft purposes may be marketed somewhat sooner than a harness horse or saddler.

BREEDING AND SEX.

The breed to which a horse belongs has very little influence on his selling price. All that is required is that he be a good individual of his class. A good horse always sells. Geldings are preferred somewhat generally to mares.

COLOR.

Color does not figure so strongly as many would lead us to believe. Almost any color with excellence to back it will sell well, except white, flea-bitten gray, "mealy" bay, or any other color that might be termed "washed out." Among drafters, no special color seems to have a preference; with harness horses and saddlers, bays, browns, and chestnuts have first preference, but grays and blacks sell readily if "good." Well-matched teams, both in harness and draft classes, usually bring higher prices than if sold singly.

CONDITION.

Condition is very often overlooked. It is absolutely essential that a horse be in good condition (well fed) to bring what he is really worth. This is particularly true of animals of the draft type. Whether it increases the animal's real value as a worker is not necessary to consider. The market demands high condition and pays those men well who cater to it. The great lack of condition is shown by the fact that many horses are sent in for sale only to be reshipped to the country for further feeding. Condition is almost as essential as fat on a steer, and its absence cuts from 25 to 50 per cent from the selling price of a horse. The requirements of the market in this line are well worthy of notice.

DISPOSITION AND INTELLIGENCE.

Every class calls for an animal of intelligence and good dispos
willing to pull at a good rate or set a fast pace on the driveway
capable and cool-headed in an emergency. The use of hors
crowded streets, often among large numbers of pedestrians, make
latter particularly essential. The need of these qualifications is
important in some classes than in others.

THE MARKET HORSE IN DETAIL.

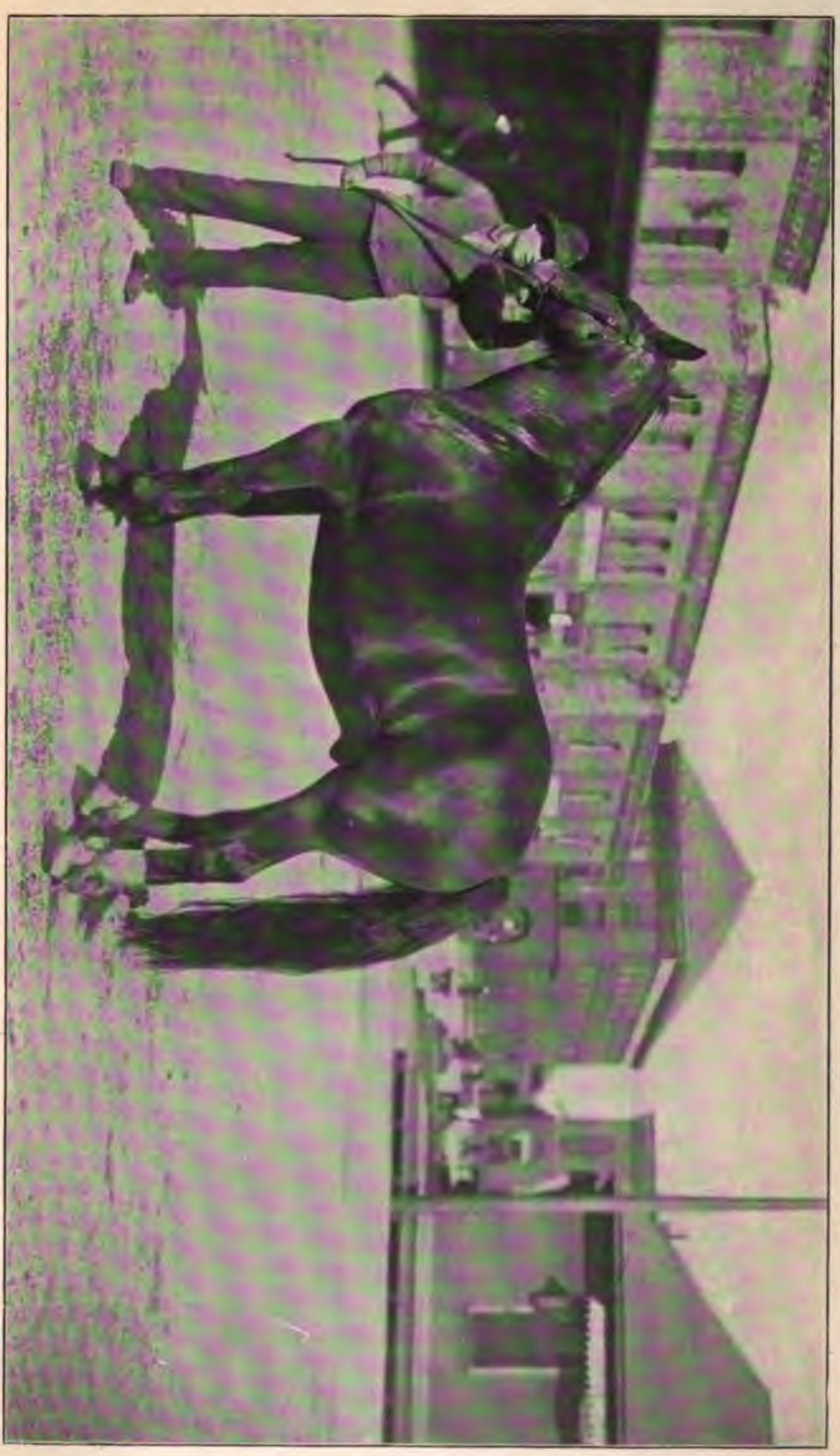
SOUNDNESS.

The most important requirement of a market horse is "servicea
soundness; that is, he must have no chronic disease that will
him for work of a general nature. He must be sound in wind a
limb, able to do a reasonable amount of work without undue fa
or premature breakdowns. The majority of the horses sold fr
great market go to the city trade and are compelled to do their wo
hard, unyielding pavements, pulling heavy loads, or developing
that is an even greater strain on the feet and legs. The average p
of usefulness on city streets of a horse that was sound at the st
not more than five years, and it is manifestly evident that this
will be materially decreased if he begins this work in an unsound
dition. Broken wind, sidebones, unsound hocks, and all the va
other ills that a horse is heir to should be strenuously guarded ag
as they greatly diminish his value.

CONFORMATION.

The next requirement, then, is a conformation that will enab
animal to do hard work with a minimum of wear, and give hi
longest possible period of soundness. Special emphasis shoul
placed on the foot, which should be of medium size, with hard
dense horn, plenty of height to the heels and plenty of room bet
them, a large elastic frog, and a nicely hollowed sole—in sh
sound, durable foot. The pastern slopes well, corresponding t
slope of the shoulder. These conditions—with flat, fully devel
muscles, strong, well-developed joints, strongly supported knees
hocks, clear, clean-cut tendons standing well out from the leg
dense bone of a quantity sufficient to sustain the weight of the ho
will give a limb well calculated to withstand the wear and tear
city pavement.

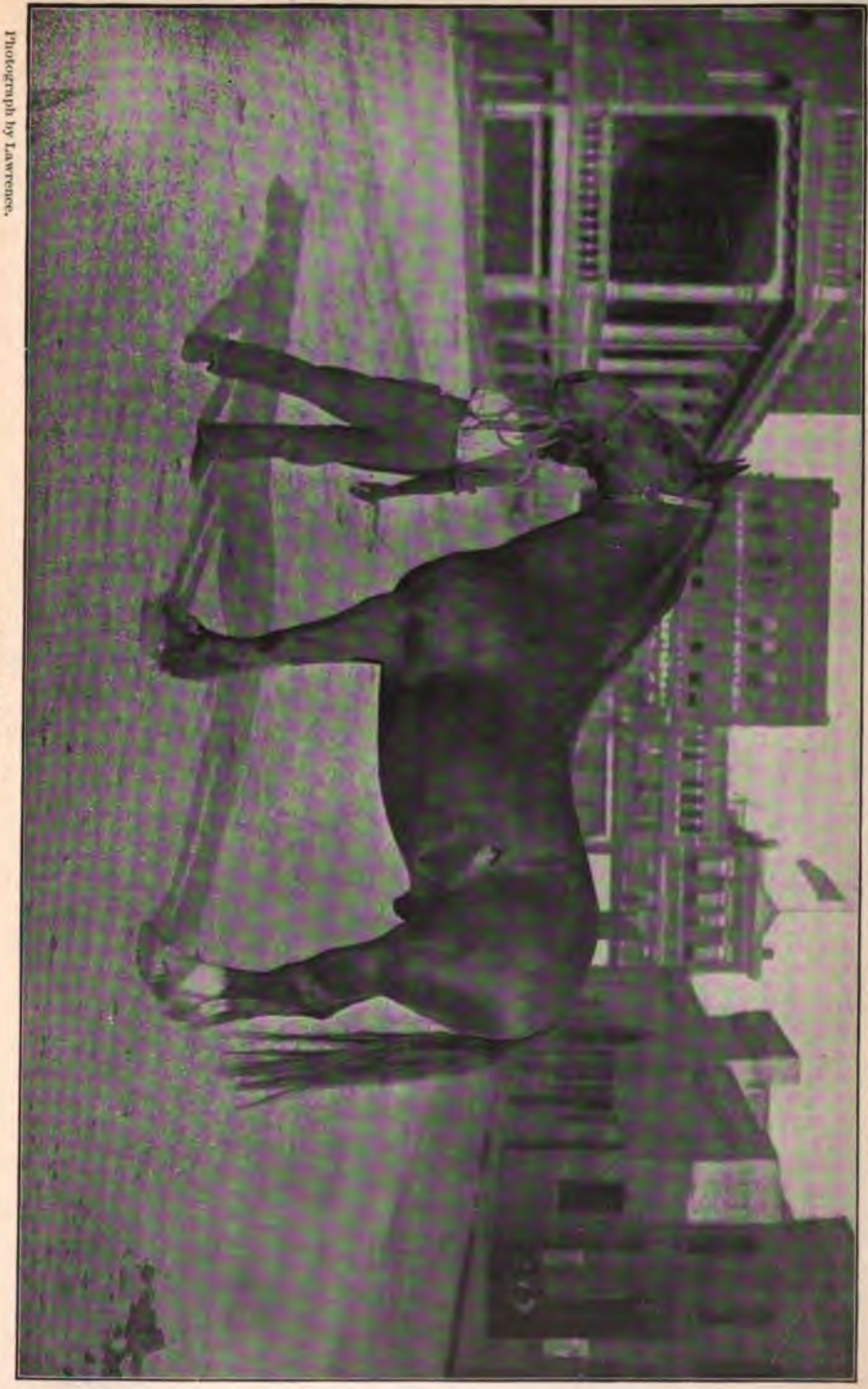
Joining the fore and hind quarters we must look for a deep, f
wide, and compact middle piece, with ample room for chest or
and no pinching at the waist. Too much width should be avoide
the action of the fore legs is almost sure to be bad with such a
formation. A short back is generally sought, especially one



Photograph by Lawrence.

THE DRAFT TYPE.

PLATE II.



Photograph by Lawrence.

A GOOD EXPRESSER.

shows the least possible amount of space between the last ribs and the hips, giving a "close coupled" horse. This is almost as essential as a sound foot. A long, loose-ribbed, open-jointed, wasp-waisted animal is especially to be avoided. Such a conformation indicates lack of strength and forecasts an early breakdown. The shoulders should be deep and smooth, and hind quarters deeply muscled, wide, and well rounded. A sloping rump is always unsightly and detracts both from the use and value of the horse, for it stands to reason that such a conformation can not furnish the same amount of muscle that a nicely rounded one can. The tail should be set high and smartly carried. Prominent shoulder points, hips, and buttocks are objectionable.

The neck should be clearly outlined, of moderate length, and well muscled, with a good crest. The head should be clean-cut and of moderate length, with a rather small ear, much breadth and fullness of forehead, a large, clear, full, intelligent eye, and a wide-open nostril, showing good lung power and consequent stamina. The mouth should be of good size, with sound teeth, and firm lips of medium thickness.

Over all these must be an abundance of muscle laid on smoothly and nicely rounded. Quality is highly essential, and the mistake of growing size without it will be found expensive. A close connection between quality and stamina is very clearly recognized by horsemen.

HORSES FOR DRAFT.

Any horse the purpose of which is to draw large loads, whether at the walk or trot, may be spoken of as a "horse for draft." Common usage has fixed the term "draft" on horses of specified weight and size, but there are other classes on the market whose conformation is what has come to be known as the "draft form," but which differ from the drafter in the matter of size and weight and the manner of performing their work. The drafter proper works always at a walk, while other classes of horses of draft type do their work mainly at the trot. As we go along, the close relationship between the different classes of this group should be noticed, for it is one of the most interesting and instructive features of the market.

THE DRAFT HORSE.

Size and weight.—The weight that will characterize a horse as a drafter will be that above which he can not work at the trot without waste of effort and horseflesh and below which he can work more economically by hauling smaller loads at increased speed. This weight is pretty generally conceded to be 1,600 pounds in fair flesh. The height of a drafter will vary from 15.3 hands for the smaller sorts to 17.2 hands for horses of great weights.

The importance of weight in a drafter must not be overloo
His purpose is solely that of heavy work, pulling great loads a
walk, and to fulfill this requirement most perfectly the first esse
is weight, with, of course, proportional size. Without weigh
immense loads that are to be hauled over our city streets could n
moved, and careful observation of the average prices has shown
other things being equal, draft horseflesh is worth about $25 for e
additional hundred pounds it can show over 1,600 pounds.[1] It is
essential that as much as possible of this weight be bone and mu
Though many buyers unquestionably demand fat, and the tru
that a horse can not sell for a creditable price unless fat, the effe
value of a horse as a worker should not be lost sight of.

Conformation.—His conformation should enable the animal to
his weight as effective as possible, and, at the same time, assu
reasonably long period of usefulness. For this purpose, he must
a rather short, heavy neck and a shoulder sloping enough to tak
collar well, but not so straight as to cause a "post leg" and
about premature unsoundness. The back should be short, well
cled, and strongly coupled to the hind quarters, which should be n
rounded, smooth, and plentifully supplied with muscle. Parti
attention should be paid to the hock. The legs must be moder
short and have a supply of bone sufficient to support the weight
work of the animal, and, of course, must be sound. A short leg,
low-set knees and hocks, is one that will stand wear and tear and us
goes with a strong, closely coupled body. Head and neck shoul
proportionate to the size of the horse. The whole appearance sh
be massive.

Action.—The action of the drafter is confined almost exclusive
the walk. For this reason the walk is of vital importance. Rap
of step and length of stride enable him to cover considerable gr
in the least possible time. Straightness, smoothness, regularity,
lack of friction enable him to do this with the least possible wea
injury to himself. The trot should possess all the merits of the w

Demand.—Horses of this description are in strong demand for u
city streets of America and Europe. The great packing houses, bre
companies, wholesale houses, and heavy dray and transfer comp
buy this class of horse, differing slightly in weight, according t
purpose to which it is to be put or the desires of the purchaser.

The rougher, plainer drafters are used for the coarser work o
cities, where the style of a team is of no particular importance
owner. The lumber trade takes such a horse, often buying ani
that are blemished or even unsound.

The horse used for the American city trade is also in strong de
for the export trade to England and the Continent.

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[1] Craig. Judging Live Stock, p. 34.

THE LONDON VANNER.

The horse known in England as a van horse is very largely purchased on the American markets. He is simply a good, "toppy" American drafter, such as has already been described, weighing from 1,600 to 1,800 pounds, and standing from 16 to 16.2 hands, with a strong, compact body on short, strong legs, with sound, healthy feet. He is used to draw heavy drays, vans, etc.

THE SCOTCH, OR GLASGOW, VANNER.

This horse is about the same as the English as to weight, though he may be lighter, and is more upstanding—that is, on longer legs. His work is the same as that of other classes of horses intended for moderately heavy city work.

The horse that the Englishmen term a "cart horse" is extremely rare on the American market, and, when found, not always of the best quality. He should stand 16.2 to 17.2 hands, and weigh 2,000 pounds and upward.

THE EXPRESS HORSE.

After the drafter, the remaining classes of the draft type are distinguished by the fact that their work is done almost exclusively at the trot. The first of these is the expresser. This is one of the best and highest classes on the market so far as individual excellence is concerned, and horses that fill the requirements are always in demand at strong prices. An expresser is the best finished of all of the minor draft classes.

Size and weight.—The size and weight vary somewhat, as a matter of course, but, as a general rule, an expresser stands from 15.2 to 16 hands, and weighs from 1,250 to 1,500 pounds, or even more, the weight varying with the kind of work, wagon, etc., to which a horse is to be put. In some cases a team hitched to an express wagon will be seen showing all the characteristics of the true drafter, but, as a rule, these horses are for heavy dray work, and are not looked upon as representative expressers.

Conformation.—The most pronounced type of expresser is a rather upstanding horse with strong, closely coupled body, considerable width of chest and hips, sound, clean limbs, and particularly sound, healthy feet. Special stress is placed on the health, quality, and conformation of the foot. Excepting the class following (the bussers) no class of draft type has to undergo the same amount of strain on the feet as the expresser. Hauling a loaded wagon at the trot soon tells on any but the best organs of locomotion.

When an expresser is said to be upstanding the inference should not be that he is what could be denominated "leggy." This extreme is to be absolutely avoided, and as between the two, a horse with short legs is much preferable. Buyers demand a sensible medium. The most striking features in the conformation o expresser are (1) his high finish, with considerable weight—“a horse with coach finish,” and (2) his rather upstanding appearan compared with other draft classes.

Action.—His work makes the trot of an expresser his most in tant gait. It should, above all things, be straight, frictionles smooth as possible, and quick and regular. The walk must be larly developed.

Demand.—The express companies constitute the ruling facto the trade for this class of horses, but other lines of business require an extra good light-delivery horse find in the expresser an animal as they desire. The lighter teams of the packing comp are heavy expressers, weighing from 1,450 to 1,550 pounds.

Fire companies buy horses very much after this type, getting a s what “toppy” animal that shows much intelligence and cou Police horses come from somewhat similar sources.

ENGLISH TYPES.

Much is heard of English “light vanners” and “parcel cart These are simply the English forms of what we call expres changed somewhat to conform to English requirements—that is, legs as short as possible. The two names are used for practicall same horse.

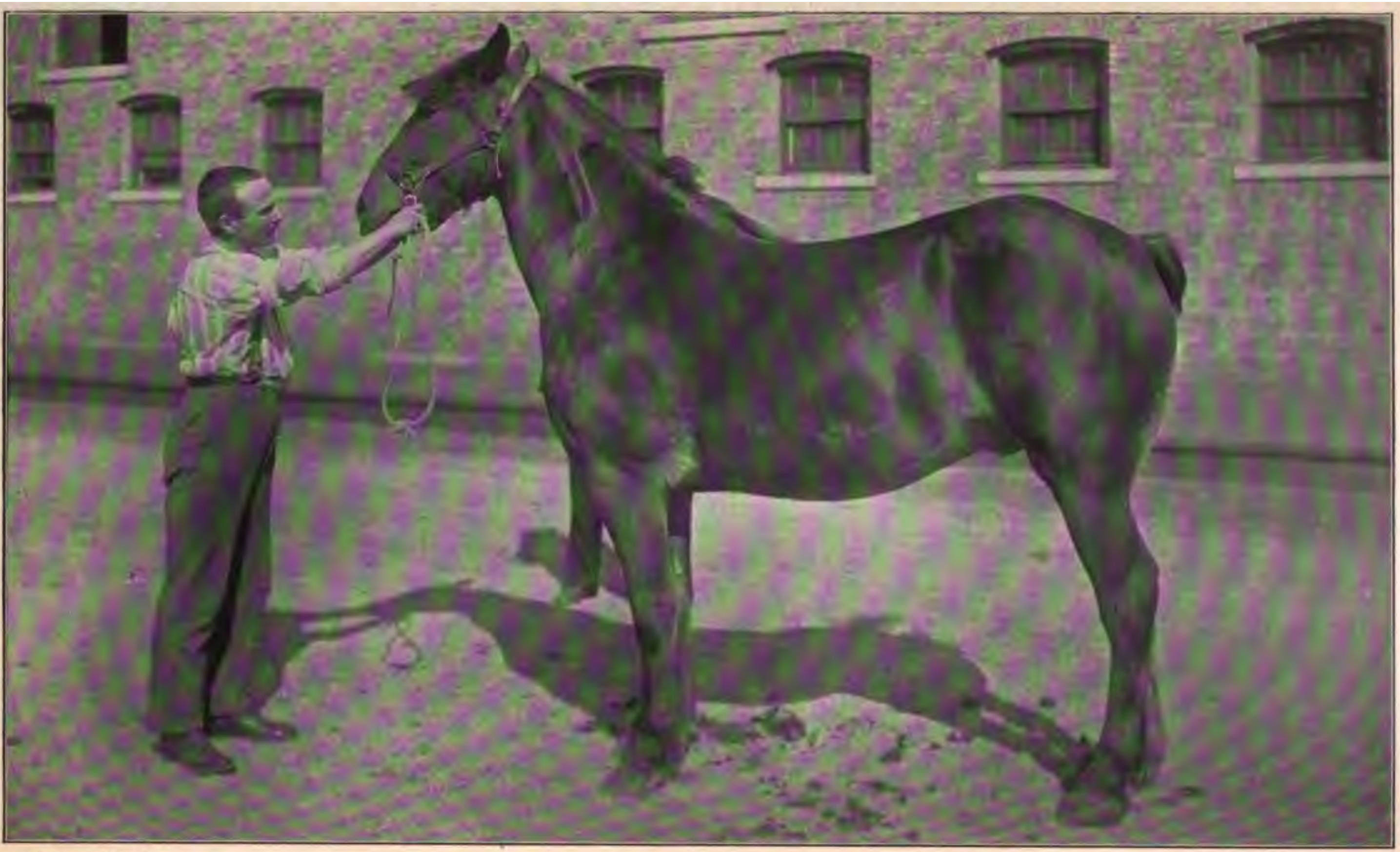
THE OMNIBUS HORSE.

Size and weight.—A typical busser stands from 15.1 to 15.3 ha and weighs from 1,200 to 1,400 pounds.

Conformation.—In form he is a compact, rugged little horse all the characteristics of the true draft type, set on short, strong with ample bone, more or less feather, and sound feet. He sh carry a fairly high head and show some style.

Action.—The work of this class is performed almost wholly at trot, and, accordingly, we will look for a horse that is a “stra line mover”—that is, straight and true in movement. He should plenty of activity, with a moderately attractive action, but espec with a trot that is quick, straight, elastic, and smooth—a true, tionless gait.

Demand.—These horses are used in large numbers on the stree foreign (especially English) cities to draw the omnibuses that a common means of transportation. Some are employed in the t of American cities demanding a light, stocky, active horse for cellaneous purposes. He fills, to some extent, the call for a gen purpose horse, but he should not be confused with the horse qu as “general purpose” in market reports. The prices that busser bringing show not only the strength of the demand but the comp tively small supply.

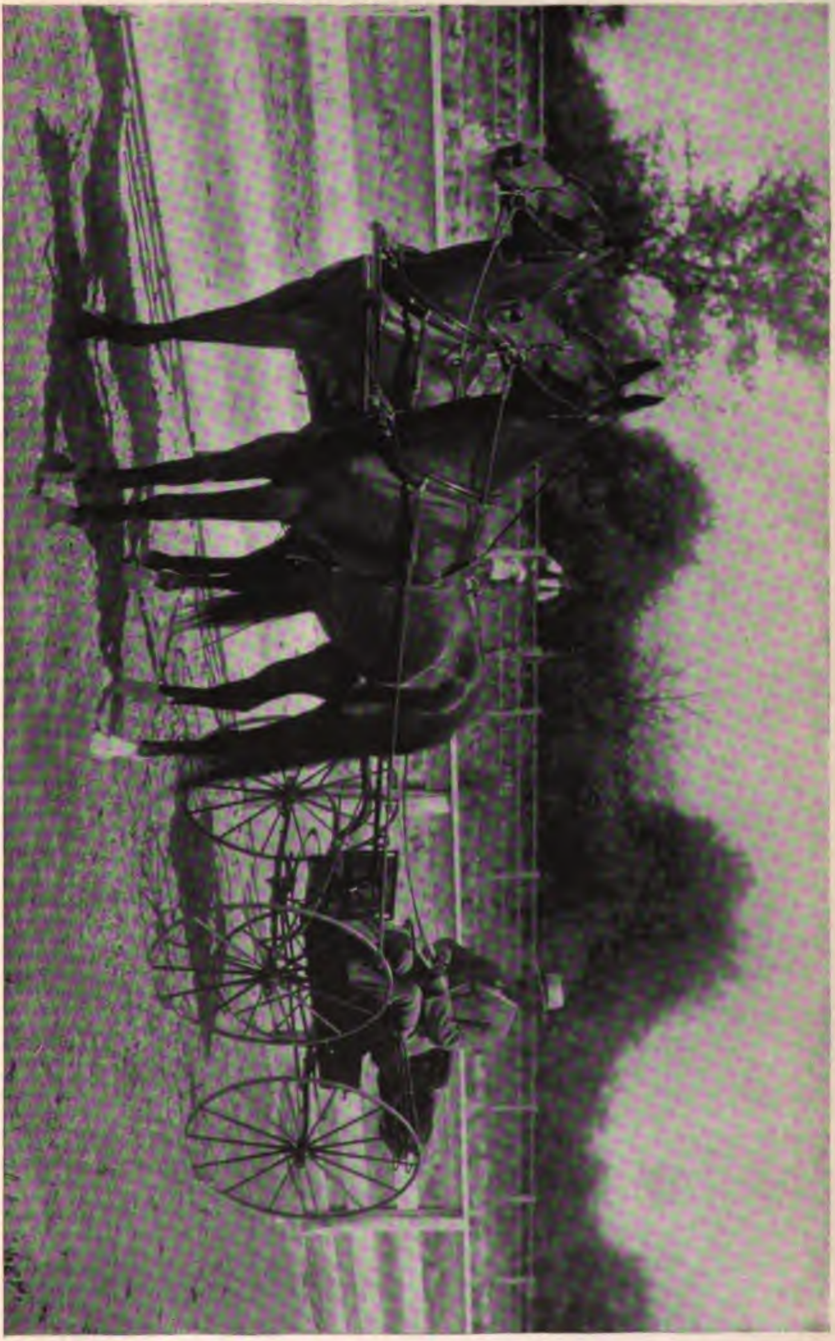


Photograph by Lawrence.

A BUSSER.

Purchased for the London trade. Observe the close conformity to the draft type in this and the preceding classes, the essential differences being those of weight.

PLATE IV.



ROADSTERS.

By courtesy of Rider and Driver.

THE TRAM HORSE.

Trammers are very little different from bussers except that they are rather plainer, an inch or two smaller in size, and correspondingly lighter, but they should have as much weight as possible for their height. They are used on the tramways of European cities.

ARTILLERY HORSES.

Contracts for horses for the army artillery service often give an outlet for small horses of the draft type weighing from 1,100 to 1,250 pounds. They are not of any particular line of breeding, being often of the blood of the light breeds, but they must fill very exact requirements to be acceptable. Two classes are generally recognized, one for light and the other for heavy artillery. Quite large numbers are purchased for use in the British army, a horse answering the description of a light parcel carter being taken for this purpose.

The specifications herewith given for the United States artillery horse will be seen to be those of an expresser without the weight:

(Article 1142, United States Army Regulations, 1901.)

The artillery horse is required for quick draft purposes, and should move the carriage ordinarily by weight thrown into the collar rather than by muscular exertion.

The animal must be sound, without blemish or defect, well bred, of a kind disposition, and free from vicious habits, a square trotter; well broken to harness, and gentle under the saddle, with easy mouth and gait, and with free, prompt action at the walk, trot, and gallop; and otherwise to conform to the following description:

A gelding of uniform and hardy color, in good condition, from 15¼ to 16 hands high; weight of the lead horse not less than 1,050 pounds and that of the wheel horse not more than 1,200 pounds; from 5 to 8 years old, head and ears small, forehead broad, eyes large and prominent, vision perfect in every respect; chest full, broad, and deep; fore legs straight and standing well under; shoulders sufficiently broad to support the collar, but not too heavy; barrel large and increasing from girth toward flank; withers elevated; back short and straight, with broad, deep loins, short coupled with solid hind quarters; hocks well bent and under the horse; pasterns slanting, and feet sound and in good order. Long-legged, loose-jointed, long-bodied, and narrow-chested horses, as well as those which are restive, vicious, or too free in harness, or which do not, upon rigid inspection, meet the above requirements in every respect, will be rejected.

HORSES FOR HARNESS AND SADDLE.

In taking up the class which, excluding cavalry horses, might be termed "pleasure horses," in contrast with the previous group, the classes which are used almost exclusively for business purposes, we come to the horse that brings by far the highest market prices when of a high degree of excellence, but whose breeding has been attended with more disastrous failures than any other; the horse that is the ennoblement of every equine virtue when it approaches perfection and that is the embodiment of uselessness and insignificance when poor. More "tinkering" has been done with trotting, coach, and

Thoroughbred blood than with any other, and it is safe to st
the unintelligent, indiscriminate, and improper use of sires
light breeds has had more to do with the development of an u
mass of scrub horse stock than any other cause.

Stand by the auction ring of any great horse market and
closely the horses that fail to bring prices sufficient to cover
production. In the great majority of cases trotting blood p
nates if any breeding at all is noticeable. Ask a dealer wha
breeding, if any, of most of the large numbers of the unc
horses on the market, his answer will be: "Trotting and coach
This is not because draft blood is more valuable or that the
the light breeds is not wanted, for the great cry of the ma
present is that good drivers and saddlers are extremely scarc
because performance and style are much more difficult to ac
breeding than size and weight. It is because men with a fas
for the race track attempt to produce trotters without the s
regard for nature's laws, and no disappointment or failure see
ficient to bring them to realize their folly. Breeding to a trott
out system and study, but only in the hope of getting a speedy
a possibility or an accident, is "playing with fire." The bree
light horses requires not only a considerable amount of capi
demands a knowledge of horses of the very highest order. It
tates concentration of effort and years of waiting and planning
not every man that brings such qualities to bear when he
1,600-pound draft mare to a 1,200-pound harness or saddle
and it is largely because of this, and not on account of the
themselves, that so many poor horses are forced on the market

A high-class roadster, coacher, or saddler is by far the most
horse to produce that the market calls for. In addition to
plans of breeding and high individual excellence in the re
progeny, a course of handling, mannering, and training must
sued before the horse will figure as a really marketable animal.
These facts must be thoroughly understood if a man would
light horses for market.

Three pretty well-defined classes, each with several subclasses
or less distinct demarcation, make up this type. Speaking of th
as a whole, we find that all the virtues of which a horse is po
must be found in this animal. The higher grades must be pe
sound in wind and limb, free from blemishes of any kind, and ext
stylish in appearance. Disposition and education are very imp
the uses for which he is intended and the conditions surroundi
require that he be kind, gentle, cool-headed in emergencies, a
mannered, yet full of spirit and energy.

DRIVERS.

Roadsters.

Size and weight.—The typical roadster stands from 15.1 to 15.3 hands high and weighs from 950 to 1,150 pounds.

Conformation.—We note now a very radical difference from the heavy horse. The roadster is more upstanding, not so wide, and entirely lacks the massiveness of the drafter, but is deep of chest and middle. In extremes of roadster form, especially when in racing condition, there is a prominent appearance of angularity that, though not unpleasing, is a sharp contrast both to the form of the drafter and, as will be shown later, to that of the coacher.

It is highly essential that feet and legs be not only sound, but of that correct conformation that will prevent unsoundness to the greatest possible extent. The pasterns should be sloping and strong, and the shoulder deep and sloping and extending well into the back. The withers are high and sharp, the back strongly muscled, short, and closely coupled, and the hind quarters long and heavily muscled. The bones from elbow point to knee (forearm) and from stifle to hock (leg) should be nearly twice as long as the cannon bones in their respective limbs, thus giving long leverage and muscles that are long, and therefore quick to respond, and placing the fulcrums of these levers close to the ground, giving strength, steadiness, and poise. The neck should be of medium length[1] to long, smoothly joined to the shoulder, and clearly defined, with a clean-cut throatlatch. The head should be fine and clean-cut, with an erect, neat, medium-sized ear, a full, clear eye and full, good-sized nostrils. Stamina is an essential of this class, and, as an indication, a high degree of quality will be looked for.

Action.—There are two opinions prevalent in the market regarding the trotting action of a roadster. One places more emphasis on its approach to the extremes of coach action, while the other regards moderately high action as essential, but does not carry it to the point where speed is sacrificed. This latter idea carried out will develop the long, reachy action that tends to increased speed; it will develop a class of horses that will closely approach the true trotter and will at the same time be less wearing on the horse. The former will branch off in an entirely different direction, with the coach horse as its ultimate end, and, if much speed is also present, will entail a severe strain on the horse. In other words, as between action and speed in a roadster at the trot, some will place more importance on action, while others will seek to develop speed, and will buy accordingly. As a roadster, strictly speaking, is a horse whose purpose is to draw a light rig on the road at a fairly high rate of speed for a consid length of time, the latter idea is technically more nearly correct around and not extreme action is desired. It must be prompt, st and frictionless, whether at the trot, the pace, or the walk.

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[1] It is questioned by good judges and expert buyers whether it is possible to get a neck too long in a horse of any class.

Demand.—Roadsters are in demand for city use or countr and for any purpose where a horse is wanted for fast driving to road wagon or run-about.

The Standard-bred horse.

Size and weight.—The Standard-bred trotter or pacer is the h the foregoing class more highly specialized and always eligible istry in the trotting register.

Conformation.—This shows the extreme of speed productio is the result of years of breeding for the sole purpose of inc speed. It is the roadster type carried to the farthest known A better description of the type was never made than the on paring the conformation to that of the greyhound.

Action.—The sole purpose of action in the Standard-bred h for the development of the greatest speed with the least p expenditure of energy. The most important essentials are str ness, smoothness, and reach.

Demand.—Eligible trotters and pacers are in demand for purposes, both amateur and professional, and for the breeding

COACHERS.

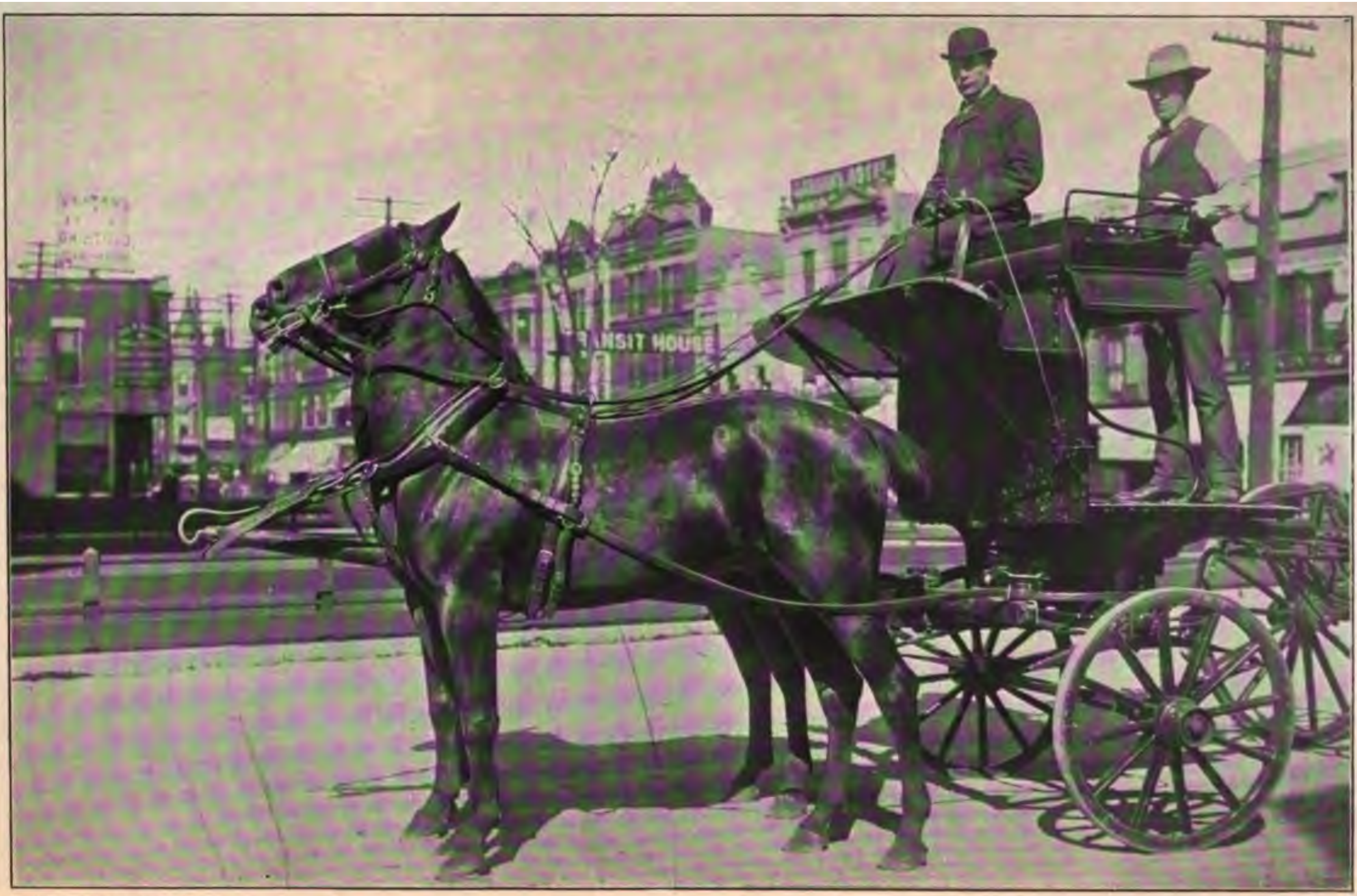
The connection between the coach horse and the roadster is extr close, the differences between the two groups being chiefly th conformation and action.

Coach horses.

Size and weight.—A typical coach horse stands 15.2 to 16 and weighs from 1,100 to 1,250 pounds.

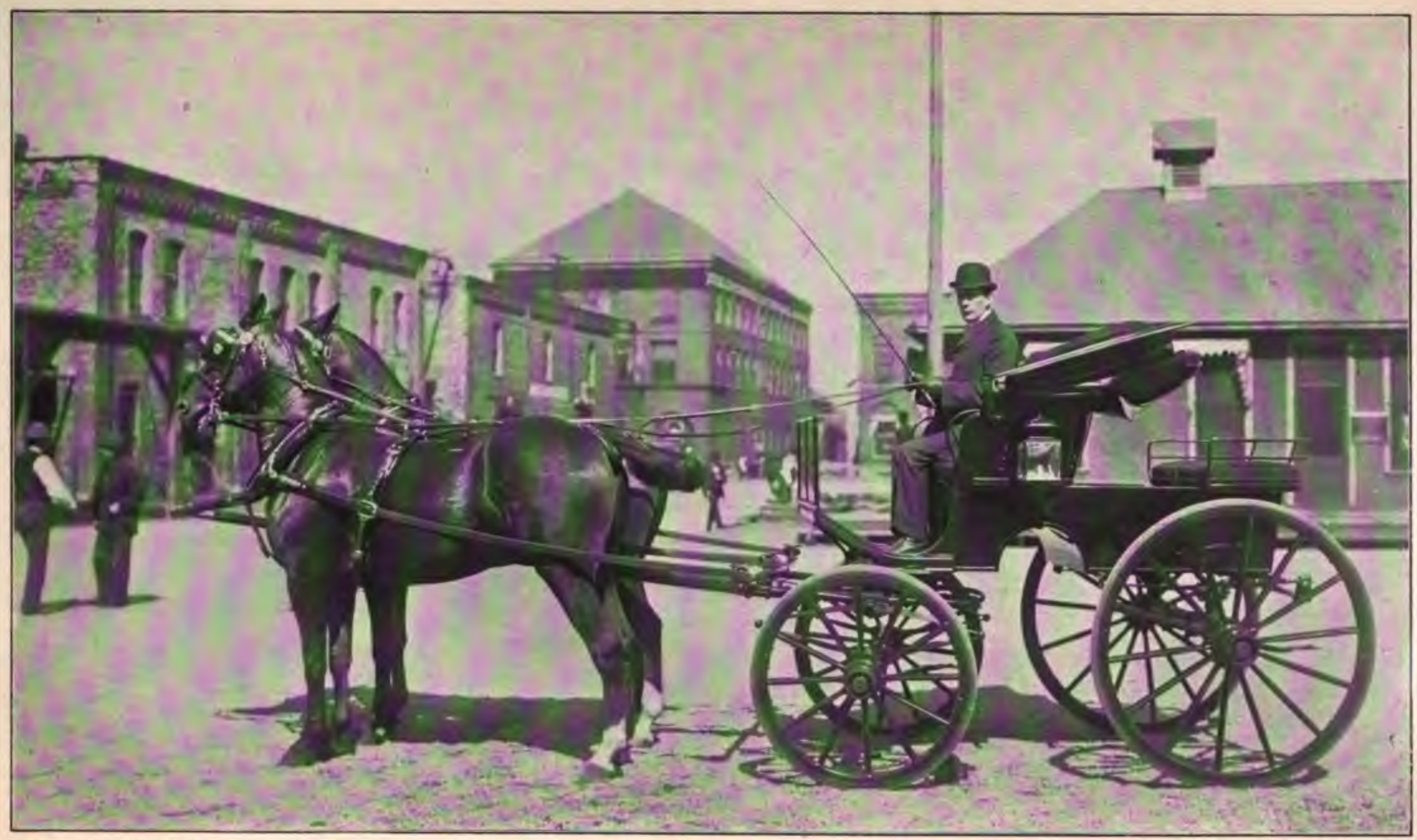
Conformation.—A coacher is considerably heavier, smoothe more compact than a roadster. The conditions of his work, of c require soundness as an absolute essential. His legs are cle and well muscled, with sloping pasterns and shoulders; the short, closely coupled to the hind quarters, and smoothly mu The hind quarters are well packed with muscle, smooth, and rou not straight and angular as in the roadster. A smooth, well- evenly rounded quarter is regarded with much favor. The tail s be set well up and carried high. In the shoulders the same poi smoothness and lack of angularity are required. The withers s be high and thin, the neck smoothly joined to the shoulders, and clean, with a full crest, the head fine and of medium size, fine ears, a full, clear eye, and large open nostrils.

PLATE V.



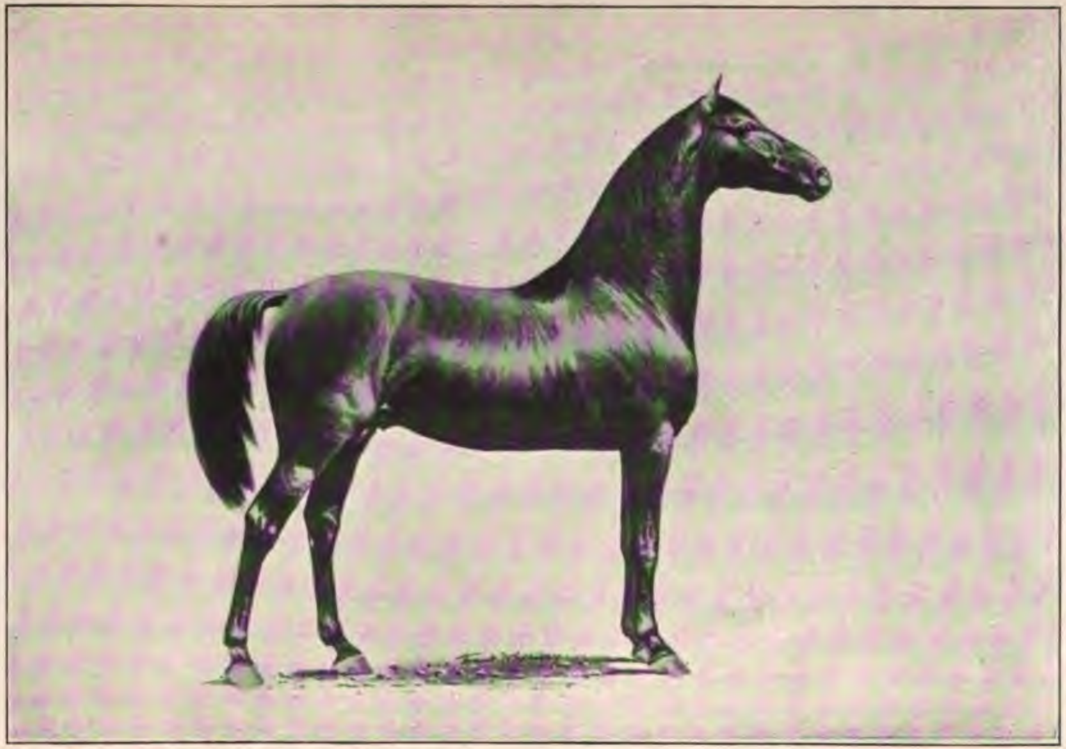
Photograph by Lawrence

A PAIR OF COACHERS.



Photograph by Lawrence

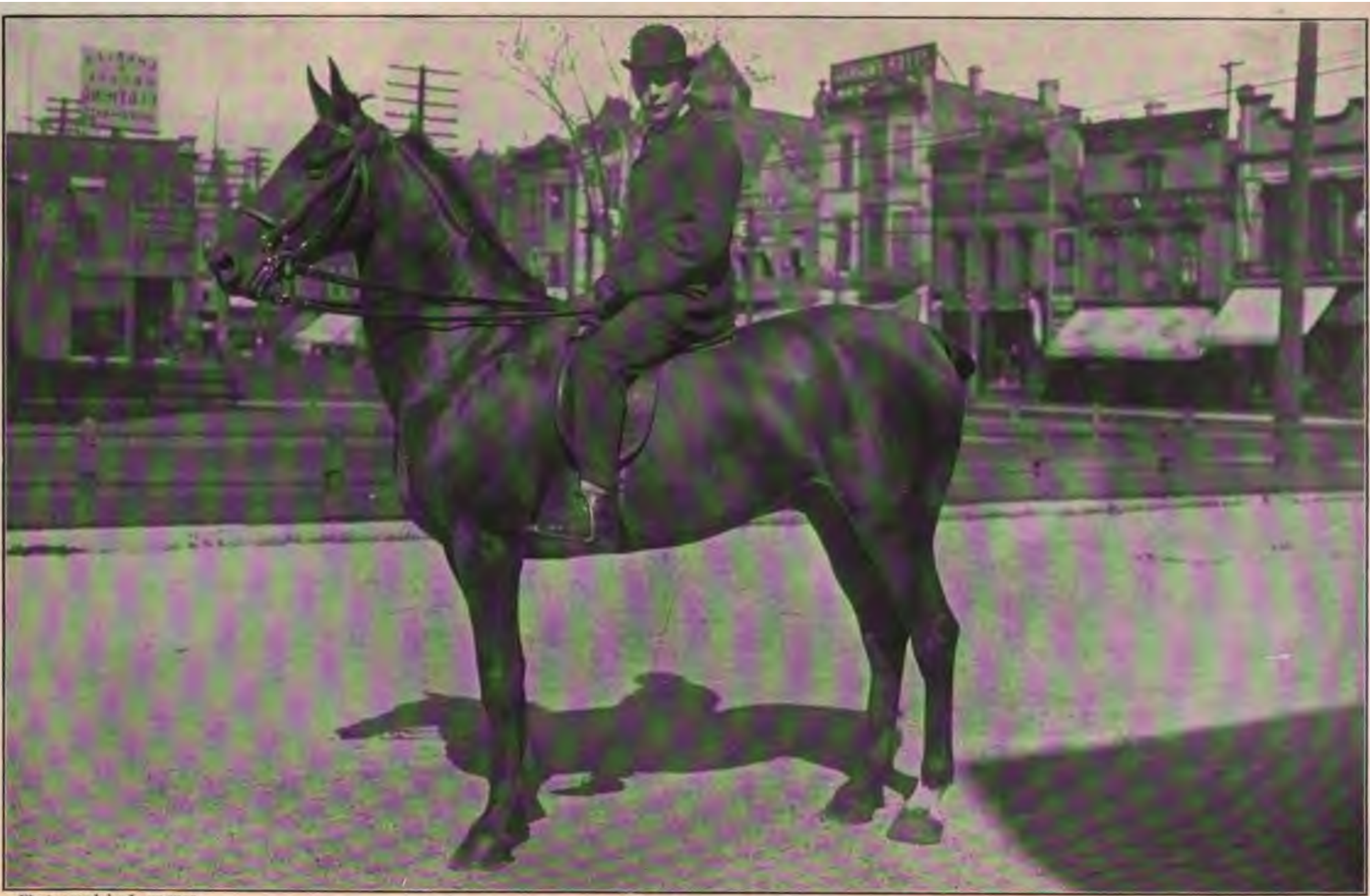
A PAIR OF LADIES' COBS



Photograph furnished by Gen. John B. Castleman.

PRIZE-WINNING AMERICAN SADDLE STALLION "GOODWIN," IN HIS TWO-YEAR-OLD FORM.

A typical illustration of the American gaited saddler that needs no explanation.



Photograph by Lawrence

A PRIZE-WINNING WALK, TROT, AND CANTER SADDLER.

Quality is as important in the coacher as in the roadster, and for similar reasons.

Action.—Conformation and action are absolutely essential to a coach horse and to each other: that is, a horse can not lay claim to merit as a coacher unless he has both of these qualifications. Proper conformation should first be present, for then the animal may be trained to act fairly well, but if a fine actor is rough and "weedy" in make up no amount of feeding and care can give him form and style.

In discussing the coach action the necessity for the legs to be moved straight and true is perhaps the first thing to be considered, for the extreme flexing of the legs, especially at the knees, makes it all the more difficult for the horse to move them in a straight line, and thus increases the danger of injury to himself by interfering, to say nothing of the unsightliness of faulty action. The fore legs are flexed as high as possible and the feet extended with a sort of rotary motion that is very different from the long reach of the roadster.

The most difficult action to acquire is at the hocks. That of the knees may be developed by training and shoeing, but high, elastic hock action is well-nigh a hopeless proposition unless bred in the horse. It may be easily inferred that it is far less common than first-rate knee action. The hocks should be flexed without any deviation from a straight line, the feet carried in much the same manner as in front and placed directly in front of their former positions, with as little jar as possible. At all times a coacher must "keep his legs under him." He does not extend himself as a roadster; there is not the long reach in front nor the swing behind.

A moderate degree of speed always gives added value to a coach horse, but much speed is not only not absolutely necessary, but is, according to the nature of things, usually out of the question. Much of the energy of the horse's effort is expended in lifting his feet as high as possible, and the combination of this effort with that of speed-making reach is asking too much of a horse, as it entails so great an amount of wear on the animal organism that it would soon give way.

While a coacher must be thoroughly sound, he is not required to have the great speed powers or endurance of the roadster. Short distances only are expected of him at a rate of from 6 to 10 miles an hour.

Demand.—The demand for a stylish animal for city driving takes all the available horses that come to the market. Some are exported, but the foreign demand has comparatively little effect on this class. The demand from the American cities is strong, the only complaint being that the right kind of horses are extremely difficult to find.

Cobs.

Size and weight.—A typical cob stands about 15.1 hands and weighs from 1,000 to 1,050 pounds.

Conformation.—If anything, the cob is more compact and sn than a coacher, and on somewhat shorter legs. He shows the possible amount of style and should be a horse of much beauty. is a nice, flashy, trappy-going little coach horse."

Action.—In action a cob has the highest development of any coachers, and has, especially, that sharp, snappy quality that men call "trappy."

Demand.—Cobs supply the same class of trade as the fu coachers, and are used for the lighter grades of work to which a c may be put.

SADDLERS.

The saddle horse.

Size and weight.—A saddler will vary considerably in the c teristics of size and weight, depending on the character of th for which he is intended and the amount of weight he is to carr a general rule, a range of from 15.1 to 15.3 in height and fron to 1,150 pounds in weight will describe this pretty accurately.

A horse of 15.1 hands height and 1,000 pounds weight makes called a "ladies' saddler;" or if a walk, trot, and canter horse, a " hack;" but for heavier riders the larger animals naturally are re some men needing a horse standing over 16 hands and weighin pounds or even more.

Conformation.—A typical saddler does not differ in form i marked degree from other light horses. Many good saddler direct from harness stock. The principal requirements that a certain extent peculiar to this class are: (1) Sloping paster shoulders; a straight pastern and shoulder is an added objecti feature in a saddle horse, for it is almost certain to make him rider. (2) Moderately high and narrow withers, for the same r the height of the withers above the hind quarters should not b gerated not more than an inch. The extension of the should the back and the shortness and compactness of coupling are ext important.

The saddler shows, perhaps, more style than any other c horses. He should have a high degree of quality, showing i detail a ribbon-like smoothness from end to end. Shoulders be smooth and even, and hind quarters well rounded and s Rotundity of body is a marked feature. He is usually so upstanding, and should have a high-set, smartly carried head an An ideal saddler will naturally have a head that shows an unusu

Breeders' Association—the walk, trot, canter, rack, and running walk, fox trot, or slow pace. Any one of the last three of the second style is acceptable to breeders of this type, but the first four must always be present. The dictates of fashion have a good deal to do with the market demands for gaits. Just at present a horse with walk, trot, and canter only is somewhat preferred, but the American saddle horse will always be in demand as a very useful animal, and will be valuable in the production of saddlers, for training can bring out the desired action, and for intelligence and extreme style no breed will surpass him. Saddle action must, first of all, be sure. A horse inclined to stumble is dangerous. Following this we look for snap, moderate height, and particularly straightness and evenness in all gaits.

Demand. Saddlers are in demand for both city and country trade, and are by no means equal to the demand.

Hunters.

Size and weight.—The class of horses known as hunters is divided into "light" and "heavy" hunters; the former carrying ladies and light-weight men, and the latter able to take men of a weight up to 200 pounds. Naturally there will be many variations between these two classes, the requirements of each rider indicating the weight of his mount. A range of from 15.2 hands, with a weight of 1,100 pounds, to 16.2 hands, weighing 1,200 or 1,250 pounds, would be a fair approximation.

Conformation. A typical hunter shows a conformation of a rather rangy order, but not loosely built, standing pretty well from the ground with legs of much bone, depending on the weight he is to carry. The shoulder should be deep; the body deep and full chested; "short above and long below," the barrel with a good development, but not paunchy—well built in every particular to be a ground gainer. Too much muscularity can hardly be present; the hind quarters should be especially long and deeply muscled. Thick necks are avoided; rather a thin long neck with a good-sized intelligent head is preferred.

The hunter must show plenty of quality; stamina is absolutely necessary for work such as he is to perform. His head must show that high degree of intelligence and fearlessness that insure the confidence of his rider.

Action.—The most desirable feature in the motive power of a hunter is his jumping ability. Not only must there be the capacity to clear any reasonable obstacle that presents itself,[1] but this must be done gracefully and willingly. Of course, a straight, smooth, easy movement is always necessary. Speed adds much to the value of a hunter, especially if his rider has ambitions to gratify.

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[1] The usual height of the fences hunted over ranges from 3 to 4 feet.

Demand.—This class of horses is in ready demand by pers
means who enjoy the sport of following the hounds. The sam
dition presents itself that is found in other classes of light
namely, that the price of a suitable animal will always be a lon
Riding to hounds is gaining in popularity in this country an
influential force in the development of the horse market.

The Thoroughbred.

The breeding of Thoroughbreds is rapidly assuming large p
tions. Many of the sales that have been held during the pas
have averaged $1,000, even for yearlings, and fabulous sums
been paid for mature breeding animals, the large prices broug
aged mares showing the strong demand that exists. The Tho
bred bears to some extent the same relation to the hunter th
Standard-bred horse does to the roadster; that is, he is large
producer of the hunter, the principal difference being that the
usually lacks the speed of a racer, and is not recorded in the
book.

Polo ponies.

The three essentials of a polo pony are (1) weight carrying
with small size, (2) agility, and (3) speed.

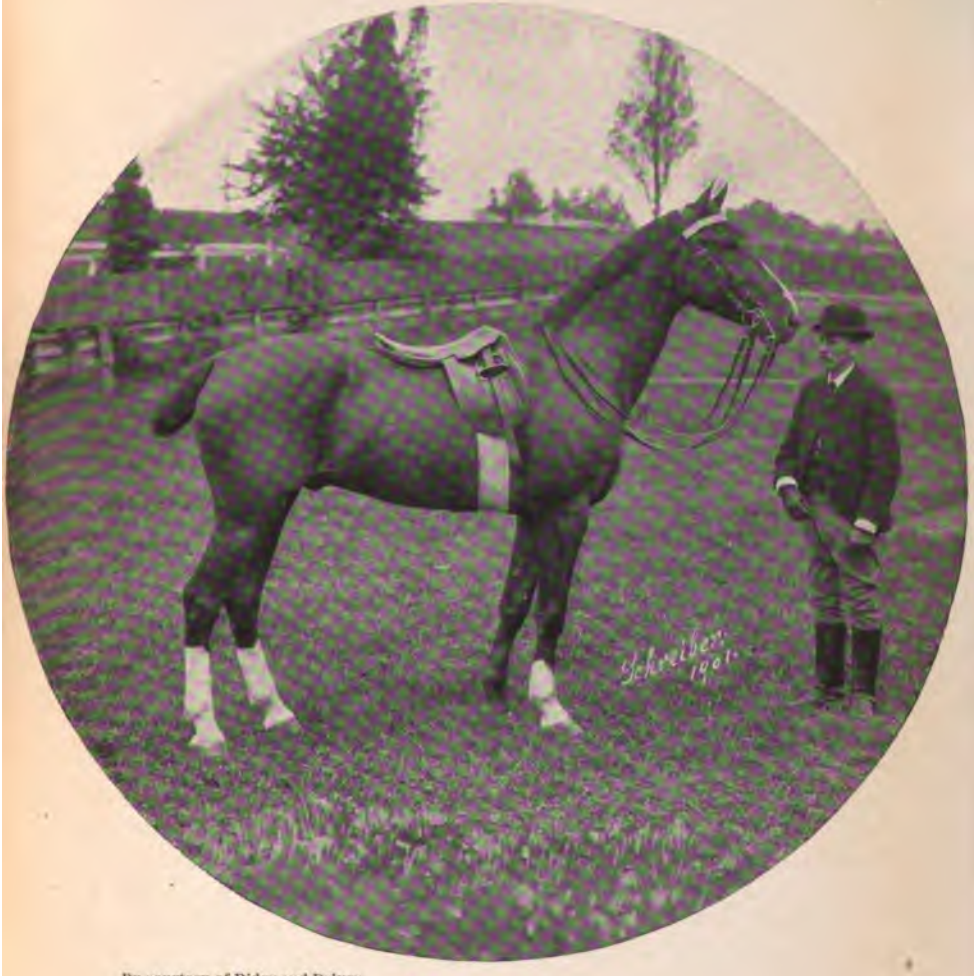
Size and weight.—The maximum height is 14.2 hands. The
for such a height will be about 850 pounds.

Conformation.—Good bone and compact conformation are req
with as much muscle as possible. "Get quarters on him like
horse, if you can," said a polo authority. Short cannon bones,
cially in the hind legs, give the horse a control of himself that e
him to turn with speed and agility. Perfect soundness and ex
quality are indispensable, for the strain of the game and the de
made on a pony's endurance are usually severe.

Intelligence and training.—Courage and intelligence are
requisites with a polo pony. Quickness of sight and a keen
ment of the game make an animal still more valuable. Alon
line it must be remembered that all ponies will not learn the
Horses are differently constituted in this respect, and such
must be expected.

Action.—The principal requirement in action is agility. The
must always have himself well under control, with the ability to
to a dead stop almost instantly from a run, and the quicknes
enables him to "turn on a dollar," as a Westerner puts it. Sp
also necessary, but agility first of all.

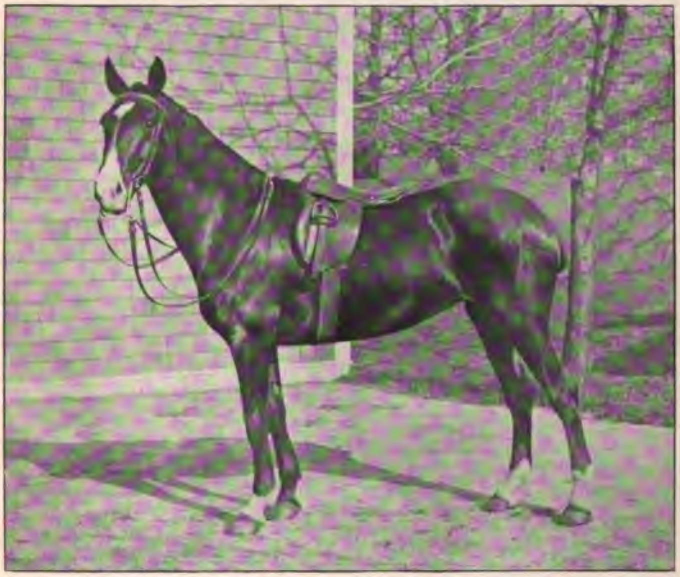
Demand.—Like the preceding class, the growth of a fasci
sport is rapidly opening up a market for another class of horses
like the hunters, polo ponies bring long prices when suitable fo



By courtesy of Rider and Driver.

A TYPICAL HUNTER.

Observe the rangy conformation, and abundance of muscle and bone that are characteristic of this class of horses



By courtesy of Horse Show Monthly.

A GOOD TYPE OF POLO PONY.

This pony was western bred.

work, and are sound. Most players have four or five horses constantly on hand, and some have twenty or thirty in their stables.

It is an interesting fact that no better polo ponies are found in the United States than Western "cow ponies" that are sound and well set up, with a few months' education in the rudiments of the game as a finishing school.

Cavalry horses.

Troopers.—At uncertain intervals the market calls for horses to fill contracts with army authorities. The demand is not exceedingly large at any time and at no time is it steady. As a general rule, these horses are selected from the various classes of light horses. Foreign governments have executed orders to some extent for army stock, most horses that are regularly bought for this purpose going to England; and within the past two years immense numbers of animals have been purchased by British agents for use in South Africa, swelling the exports last year by over 30,000. Under no circumstances, however, can the army demand be looked upon as of such character as to affect the market steadily.

The best horses bought for army purposes in this country are for the United States Army, those bought for home use by the British army next, and the stock for South Africa fall to the bottom of the scale. The United States Army demands a practically sound and unblemished horse. The specifications for the cavalry horse follow:

(Article 1142, United States Army regulations, 1901.)

The cavalry horse must be sound and well bred; gentle under the saddle; free from vicious habits; with free and prompt action at the walk, trot, and gallop; without blemish or defect; of a kind disposition; with easy mouth and gait; and otherwise to conform to the following description:

A gelding of uniform and hardy color; in good condition; from 15¼ to 16 hands high; weight not less than 950 nor more than 1,150 pounds; from four to eight years old; head and ears small; forehead broad; eyes large and prominent; vision perfect in every respect; shoulders long and sloping well back; chest full, broad, and deep; fore legs straight and standing well under; barrel large and increasing from girth toward flank; withers elevated; back short and straight; loins and haunches broad and muscular; hocks well bent and under the horse; pasterns slanting, and feet small and sound.

Each horse will be subjected to a rigid inspection, and any animal that does not meet the above requirements in every respect must be rejected.

A horse under five years old should not be accepted unless a specially fine, well-developed animal.

MINOR CLASSES.

Strictly speaking, the horses mentioned below are not in market demand. They sell, however, if the price is low enough, and follow the natural result of such a condition of being dangerously near a losing investment to the seller.

GENERAL-PURPOSE HORSES.

A very large proportion of the horses on the market are what
known in stock yards reports and market quotations as "general
pose" animals. They are horses without any particular type, emb
ing misfits of all kinds of breeding, though not scrubs, as a rule,
usually being of fair to good quality without those characteristics
fit a horse for a market class. In many cases they may be service
sound—perhaps so in the majority of instances.

Such animals are used, as the name designates, for anything
everything, but the demand is not well defined, and the supply fa
large to make this kind of horse a feature of the market other
by its numbers. The average prices for them are next to the lo
quoted.

SOUTHERN HORSES.

At most of the Western markets, particularly those on the Miss
River and at St. Louis, there exists a good demand, strongest in
spring of the year, for a rather inferior grade of horses for
Southern trade. They range in quality from very inferior to
"nice" animals. They comprise mainly an assortment of practi
unclassed horses, but as much of the roadster type as any. M
are sold as drivers, some as saddlers, the best grades usually goin
Virginia. Prices range from $5 to $200.

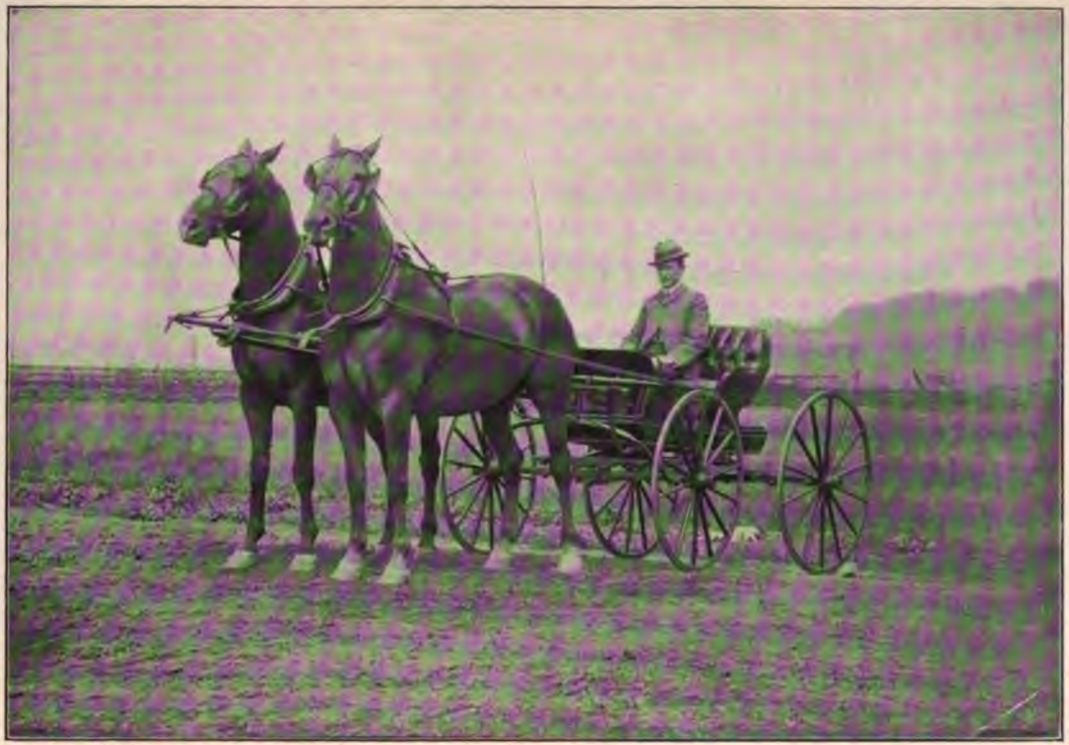
PLUGS AND SCRUBS.

These wrecks of horseflesh seem out of place in a discussion of
ket classes of horses. Plugs are usually those animals that have
back from final sale after being worn out by long years of w
Scrubs are described by the name.

THE MARKET FOR RANGE HORSES.

This phase of the horse market is somewhat difficult to t
When animals are sold on the market as "range horses," it is ge
ally understood that they are unbroken branded horses brought in
sold in carload lots, usually going to the country to be broken,
finally resold as finished horses. On the other hand, if range
are equipped to break their young stock thoroughly and do not b
them, such horses sell as natives, and strictly on their merits.

While the prejudice against a branded horse is not so strong as
merly, a brand still has a very cooling effect on the enthusiasm
prospective buyer. The memory of the evil disposition of the



Photograph by Thompeter

A PAIR OF RANGE-BRED COACHERS.

An object lesson in the possibilities of the range in horse breeding. These horses were by German coach stallions. Note especially the smoothness and rotundity of body, the quality, finish, and size.

being bettered by closer communication with man and better methods of handling, and the standard of breeding is being raised by the use of large numbers of purebred sires that have been brought in from the Eastern States and Europe. At the same time the wonderful quality and endurance of the native stock have been retained, and, however we may look upon the range horse personally, we must admit that the foundation is there for a very excellent horse stock. The systematic experimenting that has been done by shipping rangers East as youngsters has been very successful, though grades of only average quality were used.

In speaking favorably of the range horse, the grades which are usually the offspring of purebred sires are meant. These represent what the range is able to do in producing horses, and show its possibilities in the best light, which is no more than fair. With the average old-time ranger—the cayuse, mustang, or Indian pony—only exceptional individuals are worthy of attention. In the main, there is no meaner kind of equine to be found than what is known in different localities under one or another of these names.

It can not be said that even a large part of the range horses sold on the Western markets show much evidence of breeding. The work of improvement is yet in its primary stages.

The rangers divide into three fairly well-defined classes—ponies, saddlers and drivers, and chunks.

PONIES.

These are the descendants of the ancient stock that is known by the various names of cayuse, Indian pony, mustang, etc. They stand up to 14.2 hands, weighing up to 750 or 900 pounds. Some of them are horses of quality, endurance, and intelligence, and make good riding animals.

These horses are very useful for herding cattle, often showing an intelligence and agility that is wonderful and frequently disconcerting to the rider. They also furnish some of the best material for polo work that can be found, especially when mares of good type are crossed with small Thoroughbred sires. However, the cow pony that will make a good polo pony is not easily found. It is the exception, not the rule, that satisfies the buyer and brings the long prices. In such instances, the pony would not go on the market under the same conditions as the ordinary ranger. He is the exception, but an exception that serves a valuable purpose for illustrating the possibilities of the best types of range stock.

SADDLERS AND DRIVERS.

These horses are the first as a range class that may show breeding. The grades of coach, Standard-bred, and Thoroughbred sires will come

under this head. They could be described as horses stand
14.2 to 15.2 hands and weighing from 900 to 1,100 pound
occasional good one of larger size.

CHUNKS.

These usually embrace the draft grades, standing 15 hand
and weighing from 1,100 to 1,400 pounds. Extra individ
weigh over 1,500 pounds.

DEMAND.

The larger number of range horses normally find their fina
consumption on farms and in small towns. The British Gov
has bought thousands of them, and the United States Army
supplied with cavalry horses from these sources. Quite often
horses will be found in the export stables.

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no.26-37 Bulletin.
1900-1902

NAME	DATE DUE